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THE

NAVAL APPRENTICE'S KEDGE ANCHOR;

OR

YOUNG SAILOR'S ASSISTANT.

DEDICATED TO JOHN GALLAGHER, Esq.
CAPTAIN UNITED STATES NAVY.

APPERTAINING TO THE PRACTICAL EVOLUTIONS OF SEAMANSHIP, RIGGING, KNOTTING, SPLICING BLOCKS, PURCHASES, RUNNING RIGGING, AND OTHER MISCELLANEOUS MATTERS APPLICABLE TO SHIPS OF WAR AND OTHERS.

WITH PLATES.

APPROVED, AND HIGHLY RECOMMENDED BY A NUMBER OF OUR MOST DISTINGUISHED NAVAL OFFICERS.

BY WILLIAM BRADY, BOATSWAIN, U. S. N.

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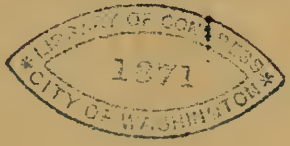

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PREFACE.

In offering the following work to the public, the author deems no apology necessary, as it was written for the use of the U. S. Naval Apprentices, as a ready means of introducing them to the theory of that art by which they must expect to advance in the profession they have chosen.

He flatters himself, however, that it will be found useful to any who intend to embrace the Sailor life, and particularly to those destined for the Navy.

Should it fall into the hands of the learned, they will bear in mind that he is better versed with the marlingspike than the pen, and that it was composed in the hours of relaxation from official duties.

He is not aware that there is any other work of this kind, except those which are large and expensive; he therefore hopes this may be received for that which

it is intended to be, a Kedge Anchor for the youthful sailor. The work has been submitted to the inspection of a number of experienced naval officers, who have given it their decided approbation, and some of whose names are appended to the work.

With these few remarks he submits it to a discerning public, to stand or fall on its own merits.

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RECOMMENDATIONS.

Examined and approved, as a very useful book for young officers and others in the navy.

JOHN GALLAGHER,
Captain U. S. Navy.

I fully concur in the above.

E. PECK,
Lieut. U. S Navy.

I have examined the within treatise on seamanship, and other miscellaneous matter appertaining to ships, and vessels of war, (written by William Brady, Boatswain U. S. Navy.) It affords me much pleasure to recommend the same to the junior officers of the navy, and others, who may be disposed to learn the profession of seamanship.

W. C. WETMORE,
Lieut. U. S. Navy.

Examined and approved as a work that will be useful to the service.

J. D. L. SAUNDERS,
Lieut. U. S. Navy.
J. MATTISON,
Lieut. U. S. Navy.

I have carefully examined the within work on seamanship, and think it one well calculated for the instruction of young officers.

C. G. HUNTER,
Lieut. U. S. Navy.

I have closely examined the within work, and think it one well calculated for the instruction of the young officers, and others in the navy.

JAMES RENSHAW,
Capt. U. S. Navy.

I fully concur in the above.

FRANCIS O. ELLISON,
Master U. S. Navy.

This I conceive to be a valuable work, and well calculated to be useful to the service.

JOSHUA R. SANDS,
Commander U. S. Navy.

KEDGE ANCHOR.

We shall first commence with knotting a rope yarn.

1. *To Knot a Rope Yarn.*

To knot a rope yarn, you first take the two ends of your yarns, and split them open about two inches from the end, and if to make a smooth knot, you may scrape down a little with your knife, so as to make the ends lay smooth, you then crutch them together as you see in the plate No. 1, you then take two opposite ends leaving the other two vacant, taking one end over and the other under the standing part of the yarn, and connecting them together at the same side you took them from at first, then jam your knot taut to see if it will stand test, by stretching the yarn from

knee to knee, and hauling on it, and if the knot stands without drawing, you may trim your ends, and go on.

---

2. *To make a Fox.*

Take two or three rope yarns and make them fast to a belaying pin, and stretch them out taut, twist them together on your knee, then rub it down smooth with a piece of old tarred parcelling. This is called a fox and is used for many purposes, such as making gaskets, mats, plats, temporary seizings, bending studding sails, &c.

---

3. *To make a Spanish Fox.*

Take a single rope yarn and make one end fast to a belaying pin as before, and untwist and twist it up again the contrary way, and rub it smooth; this is used for small seizings, &c.

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4. *To make a Knittle.*

A knittle is made of two or three rope yarns laid up together by hand, twisting them in your finger and thumb, and laying them up against the twist of the yarn, they are used for many purposes on board a ship, and particularly for hammock clews.

5. *Overhanded Knot.*

To make an overhanded knot, you pass the end of a rope over the standing part and through the bight.

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6. *Figure of Eight Knots.*

Take the end of your rope round the standing part, under its own part and through the lower bight, and your knot is made.

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7. *Two Half Hitches.*

Pass the end of your rope round the standing part, and bring it up through the bight, this is one half hitch, two of these, one above the other, and it is made.

---

8. *Reef or Square Knot.*

First make an overhanded knot round a yard, or spar, or anything you please, then bring the end being next to you over the left hand and through the bight, and haul both ends taut and it is made.

9. *A Bowline Knot.*

Take the end of your rope in your right hand, and the standing part in the left hand, then lay the end over the standing part, then with your left hand turn the bight of the standing part over the end part, so as to form a cuckold's neck on the standing part, then lead your end round the standing part above, and stick it down through the cuckolds neck, and it will appear as in the plate.

---

10. *Bowline on the Bight.*

Take the bight of your rope in your right hand, and the standing part in the other, throw a cuckolds neck over the bight with the standing parts, then haul enough of your bight up through the cuckolds neck to go under and over all parts, and jam all taut, and it will appear as in the plate.

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11. *A Running Bowline.*

Take the end of your rope round the standing part and through the bight, and make a single bowline upon the running part, and your knot is made.

12. *A Timber Hitch.*

Take the end of your rope round a spar, and pass it under and over the standing part, then pass several turns round its own part and it is done.

---

13. *A Fisherman's Bend.*

With the end of a rope take two round turns round a spar, or through the ring of a kedge anchor, then take one half hitch around the standing part and under all parts of your turns, then one half hitch around the standing part above all, and stop the end to the standing part; or you can dispense with the last half hitch, and tuck your end under one of the round turns and it becomes a studding-sail bend.

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14. *A Rolling Bend.*

A rolling bend is something similar to fisherman's bend, it is two round turns round a spar as you see in the plate, two half hitches around the standing part, and the end stopped back. (*See plate.*)

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15. *A Carrick Bend.*

This bend is more used in bending hawsers to-

gether, more than any thing else. In forming this bend you will take the end of your hawser and form a bight, by laying the end part on the top of the standing part, so as to form a cross, then take the end of the other hawser, and reeve it down through this bight and up and over this cross, then tuck the end down through the bight again on the opposite side, from the other end, for one end must be on the top, and the other underneath as you see in the plate.

☞ If both end parts come out on the top it will be a granney's knot. Remember this.

---

16. *A Cats Paw.*

This is generally used in the ends of lanyards, to hook a tackle to in setting up rigging, to form it, you first lay the end part of your lanyard across the standing part which will form a bight, then lay hold of the bight with one hand on each side of it, breaking it down and turning it over from you two or three times, then clap both bights together and hook on to both parts. (*See Plate.*)

---

17. *A Sheet or Becket Bend.*

Pass the end of your rope through the bight of

another rope, or through the becket of a block, then round both parts of the bight or becket, and take the end under its own part, as you see in the plate. Some people put it under twice and stop the end back to the standing part.

---

18. *A Back Wall.*

This is used with a lanyard in setting up rigging to hook a luff tackle to, instead of a cats paw, where the end of your lanyard is not long enough to form a paw, but a strap and toggle is preferable to both, to make a back-wall over a hook, you form a bight or rather a kink with the end of your lanyard, having the end part underneath, and the standing part on the top, then stick the hook through the bight, keeping the bight well up on the beck of the hook, as you see in the plate, until you set taut your tackle.

NOTE. You can learn it better by practice than explanation.

---

19. *A Rolling Hitch.*

With the end of a rope take a half hitch round the standing part, then take another through the same bight, jambing it in above the first hitch and the upper part of the bight, then haul it taut, and

dog your end above your hitch, around the standing part, or you may take a half hitch around the standing part, and stop your end back with a yarn.

---

20. *A Selvage Strap.*

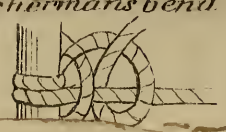
To make a Selvage strap you may get a couple of spike nails, and drive into an old piece of plank or whatever you can find convenient to answer the purpose, or you can take two hooks if you can get them, and lash them to any convenient place as far apart as the length you intend to make your strap, then take the end of your ball of rope yarns, and make it fast to one of the spikes or hooks, then take it around the other one, and keep passing round and round, and hauling every turn taut as you pass it, until it is as stout as you wish it to be, if it is to be a very large strap, marl it down with stout spurn yarn, if middling size, two single rope yarns, if a small strap, a single rope yarn.

---

21. *A Pudding for a Mast or Yard.*

Take a piece of rope the length you require, and splice an eye in each end, then get it on a stretch and worm it, then parcel it according to the shape you want it. They are generally made as you see

A back wall hitch



Fishermans bend

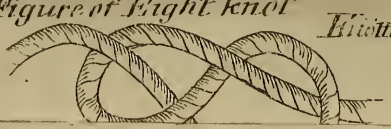
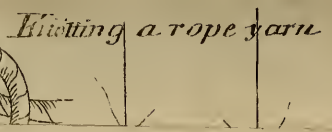


Figure of Eight knot



Knitting a rope yarn

KNOTTING, BENDING, HITCHING &c

PLATE I.

A back walk hitch

Fishermans bend

Figure of Eight knot

Knitting a rope yarn

Bowline knot

Rolling hitch

Rolling bend

Running bowline

Square or Reef knot

Carrick bend

Bowline on the bite

Cats paw

Two half hitches

Timber hitch

Sheet bend

Overhand knot

A Painting for a Mast

Scrowgee Strap

in the plate, large in the middle, and taper gradually towards the ends, and made flat on the side that goes next to the mast or yard, when you have got it the size you wish, marl it down, beginning in the middle and marling both ways, until you come to the eye, if it is for a yard it is generally covered with thick leather or green hide, if for a mast, it is pointed over for neatness.

---

22. *A Short Splice.*

To splice the two ends of a rope together, you first unlay your rope to a convenient length, then crutch them together as you see in the plate, then you must lay hold of the three strands next to you in your left hand, holding them solid around the other part till you stick your three upper ends, or if it is a large rope, you may stop your ends with a yarn, then take the upper or middle end, and pass it over the first strand next to it, and then stick it underneath the second strand, and haul it taut in the lay of the rope, then turn your rope a little to you, and stick your second end as you did your first, and your third in the same manner, hauling them taut along the lay, then turn your rope round, and stick the other three ends in the same way, and it will appear as in the plate.

NOTE. If you intend to serve over your ends, you need not stick them but once, but if not you must stick them twice and cross whip them across the strands, so as to make them more secure. If you intend to serve over your ends, you must take a few of your underneath yarns, enough to fill up the lay of your rope for worming, then scrape or trim your outside ends, and marl them down ready for serving.

---

23. *A Long Splice.*

To make a long splice unlay the end of two ropes to a convenient distance, then crutch them together the same as a short splice, then unlay one strand for a considerable length, and fill up the space which it leaves, with the opposite strand next to it, then slew your rope round, and lay hold of the two next strands that will come opposite their respective lays, then unlay one and fill up with the other as before, then cut off your long strands, square with the short strands, and it will appear as in the plate. To complete this splice, you will split the strands equally in two, then take the two opposite half strands and knot them together, so as to fill up the vacant lay, then you stick your ends twice under two strands with all six of your half strands, leaving the other six neutral, then stretch your splice well before you cut your ends off and it is finished.

24. *Eye Splice.*

Is made by opening the end of a rope and laying the strands at any distance upon the standing part of the rope, according to the size you intend to make your eye splice, you then divide your strands by putting one strand on the top and one underneath the standing part, then take your middle strand, having previously opened the lay with a marlinespike, and stick it under its respective strand as you see in the plate; your next end is taken over the first strand and under the second, and the third and last end is taken through the third strand on the other side.

---

25. *A Cut Splice.*

Cut a rope in two, and according to the size you intend to make your splice or collar, lay the end of one rope on the standing part of the other, and stick the end through between the strands the same as an eye splice, and it will appear as in the plate. This forms a collar in the bight of a rope, and is used for pendants, jib-guys, breast-back stays, odd shrouds, &c.

---

26. *A Flemish Eye.*

Unlay the end of a rope, then open the strands

and separate every yarn, then divide them in two halves, then take a piece of round wood, the size you intend to make your eye, and half knot about one half of your inside yarns over the piece of wood as you see in the plate, scrape the remainder down over the others, and marl, parcel and serve, or hitch it with hamberline, if you choose; this makes a snug eye for the collars of stays.

---

27. *An Artificial Eye.*

Take the end of a rope, and unlay one strand to a certain distance, and form the eye by placing the two strands along the standing part of the rope and stopping them fast to it, then take the odd strand and cross it over the standing part, and lay it into the vacant place you took it from at first, work around the eye, filling up the vacant strand until it comes out at the crutch again, and lies under the other two strands; the ends are tapered and scraped down, marled and served over with spun yarn.

---

28. *To worm and serve a rope.*

Worming a rope is to fill up the vacant space between the strands of the rope with spun yarn, this

is done in order to strengthen it, and to render the surface smooth and round for parcelling.

Parcelling a rope is wrapping old canvass round it, cut in strips from two to three inches wide according to the size of the rope, the strips of canvass to be well tarred and rolled up in rolls before you commence to lay it on the rope, the service is of spun yarn, clapped on by a wooden mallet such as you see in the plate, called a serving mallet, it has got a large score cut in the under part of it, so as to fay on the rope and a round handle about a foot long, or according to the size of the mallet; the service is always laid on against the lay of the rope, a boy passes the ball of spun yarn at some distance from the man that is serving the rope, and passes it round as he turns the mallet, when he has put the required length of service, the end is put through under the three or four last turns of the service and hauled taut.

NOTE. It has always been customary to put parcelling on with the lay of the rope in all cases. But rigging that you do not intend to serve over, the parcelling ought to be put on the contrary way.

---

29. *To clap on a Throat and quarter seizing.*

Splice an eye in the end of the seizing, and take the other end round both parts of the rope that you

intend to put it on to, then reeve it through the eye, pass a couple of turns, and heave them hand taut, then make a marline-spike hitch on the seizing. By taking a turn with the seizing over the marlinespike and laying the end part over the standing part, and then pushing the marlinespike down through, then under the standing part, and up through the bite again, heave those two turns taut, with the spike, pass the rest and heave them taut in the same manner, making 6, 8, or ten turns according to the size of the rope, then push the end through the last turn, then pass the riding turns, 5, 7, or 9, always laying one less of the riding turns, than of the first turns; these are not to be hove too taut, the end is now pushed up through the seizing, and two cross turns are taken between the two parts of the rope, and round the seizing, taking the end under the last turn, and hove well taut, and an overhanded knot clapped on the end of the seizing, and cut off close to the knot.

Note. When this is clapped on the end of a rope, and round the standing part, it is called an end seizing, if on the two parts, below the end, a middle or quarter seizing; a throat seizing is passed the same way, but is not crossed with the end of the seizing.

---

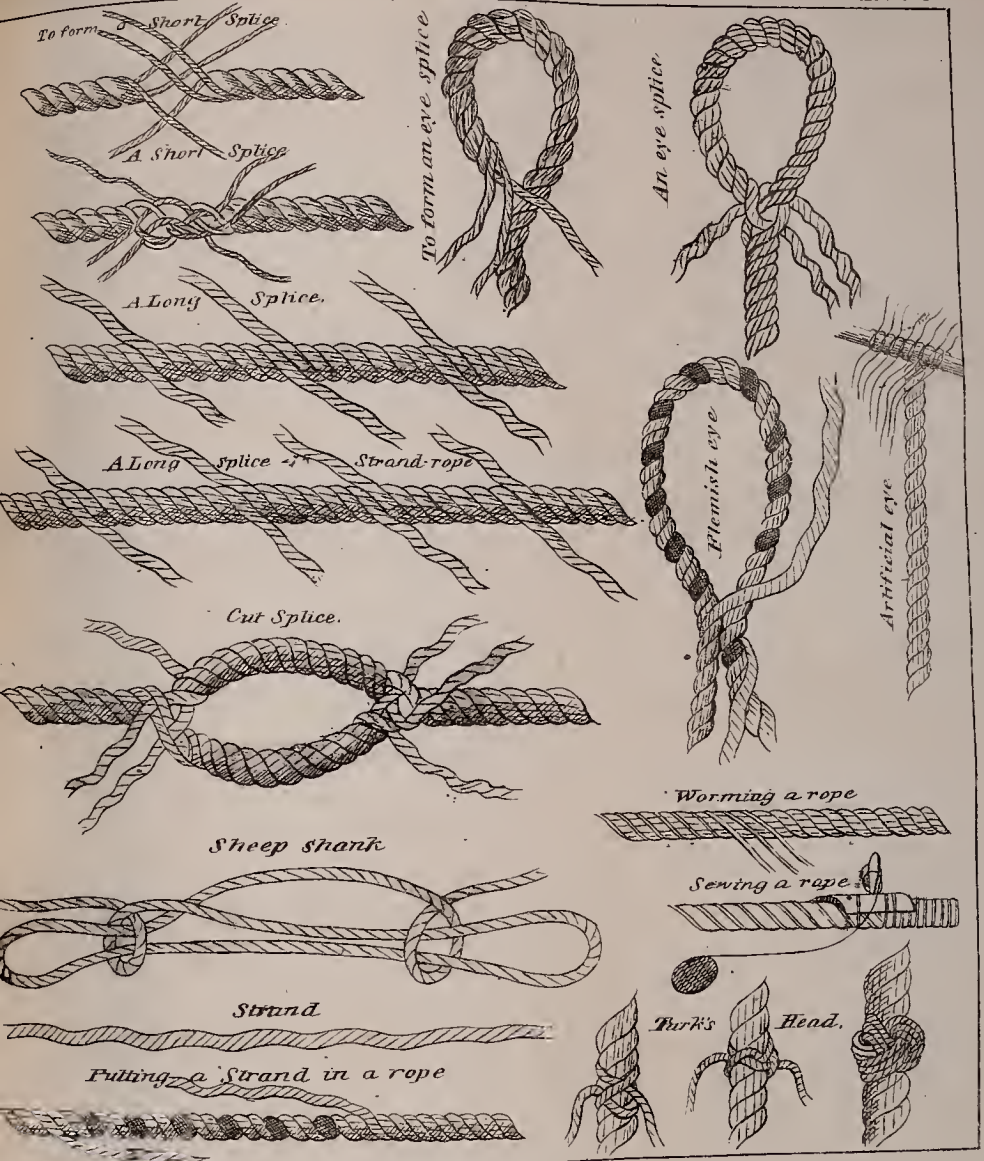
30. *To make a Turk's head.*

Turk's heads are made on man ropes and some-

To for

Pul

G. W. Lewis' Lith.



G. W. Lewis Lith.

times on the footropes of jibbooms in the place of an overhanded knot, as the Turk's head is much neater than the knot, and considered by some an ornament. It is generally made of small white line. Take a clove hitch with the line round the rope you intend to make the Turk's head on, then cross the bights on each side of the clove hitch, and stick one end under one cross, and the other end under the other cross, and it will be formed like the middle figure in the plate, after which follow the lead until it show three parts all round, and it will be done.

---

31. *To Sheepshank a rope or Backstay.*

It is made for shortening a backstay, the rope is doubled in three parts as you see in the plate, and a hitch taken over each bight with the standing part of the Backstay, and jambed taut.

---

32. *To put a strand in a rope.*

This is done in case of one strand of a rope getting chafed or magged, and the other two remaining good. To perform this, you take your knife and cut the strand in the place where it is chafed, and unlay it about a couple of feet each way, then take a

strand of a rope as near the size as you can get, and lay it in the vacancy of your rope as you see in the plate, and stick your ends the same as a long splice.

---

33. *To Wall and Crown.*

Unlay the end of a rope, and with the three strands form a wall knot, by taking the first strand and forming a bight, then take the next strand, and bring it round the end of the first, and the third strand round the second, and up through the bight of the first, this is a wall as you see in the plate. To crown this, lay one end over the top of the knot, which call the first, then lay the second over it and the third over the second, and through the bight of the first and it will appear as you see in the plate.

---

34. *To make a Matthew Walker.*

Is made by opening the strands of a rope and taking the first strand round the rope and through its own bight, then take the second end round the rope underneath, through the bite of the first, and through its own bight, and the third end take round the same way, underneath and through the bights of all three, haul your ends well taut and it will appear as in the plate; this is a good lanyard knot if well made.

35. *A Spritsail Sheet Knot.*

Unlay two ends of a rope and place the two parts which were unlaid, together, form a bight with one strand, and wall the six together against the lay of the rope, which is hawser laid, the same as you would a single wall with three ends, after you have walled with six ends, haul them taut, and then you must crown with the six ends and it will appear as in the plate; to complete it you must follow the lead of the parts, and double wall and crown it and it is done. This is often used for a stopper knot in old fashioned ships.

---

36. *A Shroud Knot.*

Unlay the ends of two ropes, placing them one within the other, the same as you commence to make a short splice, then single wall the ends of one rope round the standing part of the other, then wall the other three ends the same way, the ends are opened out and tapered down and served over with spun yarn; this knot is used when a shroud is either shot or carried away.

---

37. *A French Shroud Knot.*

Place the ends of two ropes as before, drawing

them close together, then lay your first three ends back upon their own part, and single wall the other three ends, round the bights of the other three and the standing part, and it will appear like the figure in the plate; the ends are tapered as the other, this is a much snugger knot than the common shroud knot.

---

38. *Single Diamond Knot.*

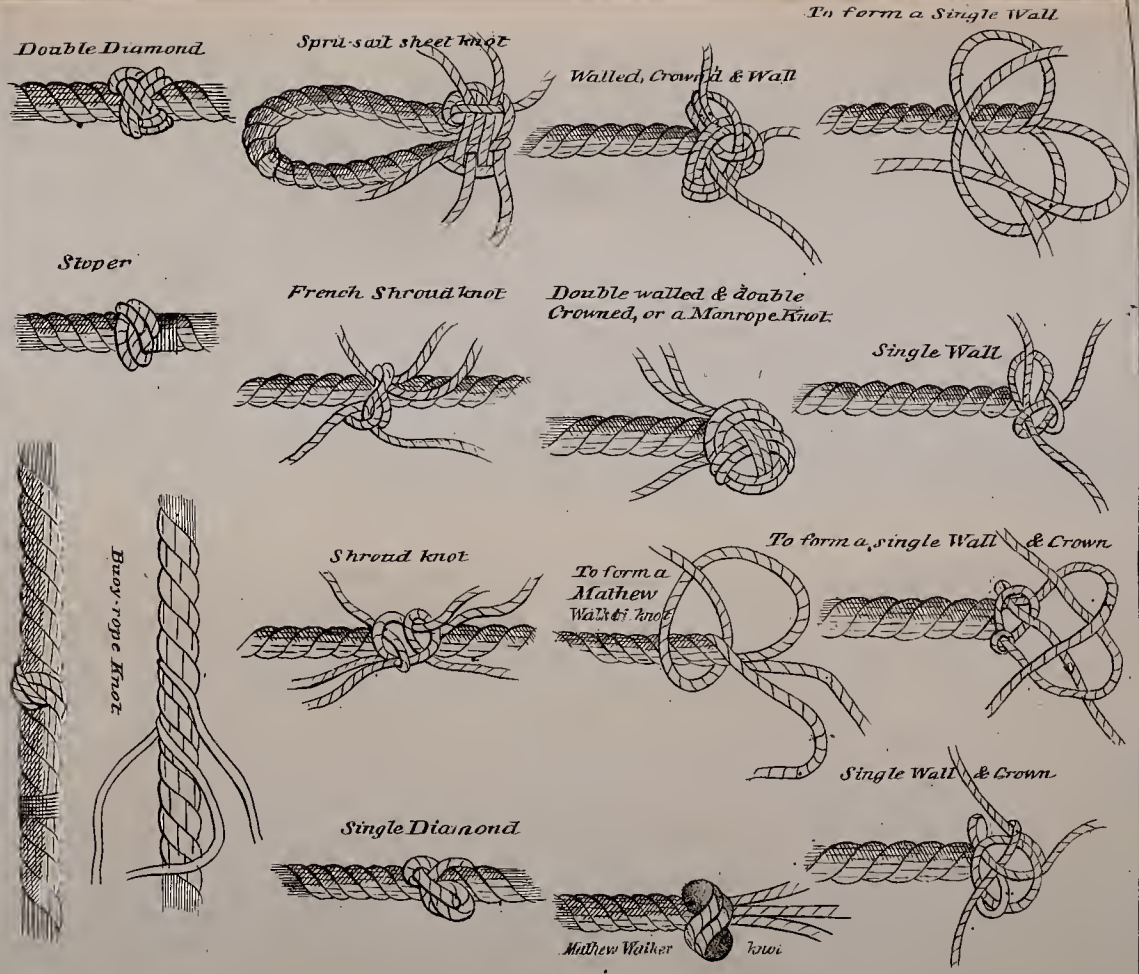
Unlay the end of a rope a convenient length to make your knot, and with the three strands form three bights, holding the ends fast down the side of the rope in your left hand, with the standing part of the rope, then take the first strand over the bight of the second strand and through the bite of the third, then take the second over the third and through the bight of the first, then the third over the first and through the second. Haul these taut and lay the ends of your strands up again and it will appear as in the plate. It is used for jibboom, foot ropes, man ropes, &c.

---

39. *A Double Diamond Knot.*

To make this, you make a single one as before, then take a marline-spike and open your strands, and follow the lead through two single bights, the

Double Diamond
Sprit-sail sheet knot
Walled Crown & Wall
A Point & Single Wall


To form a Single Wall
Double Diamond
Sprit-sail sheet knot
Walled, Crowned & Wall
Sipper
French Shroud knot
Double walled & double Crowned, or a Manrope Knot
Single Wall
Shroud knot
To form a Mathew Walker knot
To form a single Wall & Crown
Buoy-rope Knot
Single Diamond
Single Wall & Crown
Mathew Walker knot

ends coming out at the top of the knot, lay the ends of your strands up as before, and it will appear as in the plate.

---

40. *A Stopper Knot.*

Is made by double walling and crowning as has been described before on an other page, the ends, if very short are whipped without being layed up ; but if long they are layed up and stopped.

---

41. *A Buoy Rope Knot.*

Unlay the strands of a cable laid rope, then take one strand out of the large ones, and then lay the three large ones up again as before, and take the three small ones which were left out, and single and double wall them round the standing part of the rope, then take your spare ends, and worm them along the lay and stop them.

---

42. *Common Sennit.*

Sennit is made by plaiting rope yarns together as is described in the plate.

43. *A Sea Gasket.*

Is made by taking three or four foxes according to the size you intend to make your gasket. Middle them over a belaying pin, and plait three or four together, long enough to make your eye, then clap both parts together to form your eye, then plait it by bringing the outside foxes on each side alternately over to the middle, the outside one is laid with the right hand, and the remainder held steadily, work the whole together, adding one fox, and when you have got it a convenient length, commence to diminish by dropping a fox at proper intervals. To finish it, you must lay one end up, leaving its bight down, then plait the others through this bight, about one inch, then haul the bight taut, to secure all parts, and cut the ends off, and whip it and it is done.

---

44. *A Panch or wrought Mat.*

A piece of six or nine thread is stretched in a horizontal direction, and the foxes according to the breadth you intend to make the mat, are middled and hung over it, then take the fox nearest the left hand, and twist a turn in the two parts, and one part give to the man opposite (two people being employed to work the mat,) the next fox has a turn twisted in its two parts, and one part given back to your part-

ner, the remaining is twisted round the first which was given back, and then again round its own part, and so on with the remainder of the foxes, until you get it the breadth you wish, at the bottom of the mat selvage it by taking a piece of nine thread, the same as you used for the top, the two parts of the foxes which are twisted together at the bottom are divided, and the nine thread put between them, the foxes are hitched round it, and the end put through its own lay with a marlingspike, then trim your ends off, and thrumb it with pieces of old strands of rope, cut in pieces, about three or four inches long, open the lays of your foxes with a marlingspike, and push your thrumbs through the lays and open the ends out.

---

45. *Harbour Gasket or French Sennit.*

Is made with foxes, something like the way you make a common sea gasket, in the room of taking the outside fox over all the rest, and bringing it into the middle, you interweave it between them by taking the outside fox of both sides, and taking it over one and under the other, working it towards the middle the same as common sennit.

---

46. *Pointing a rope.*

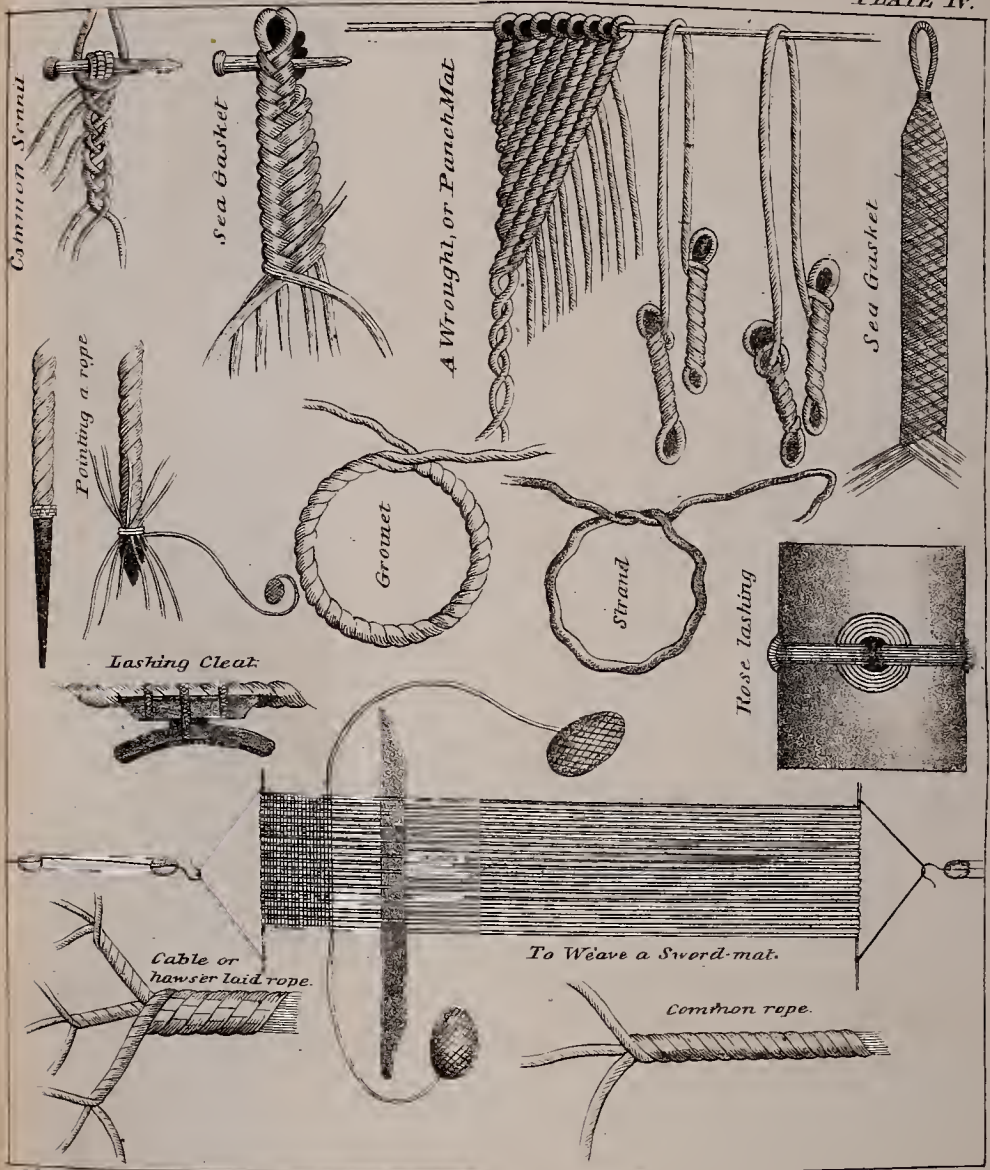
Unlay the end of a rope a convenient length for

pointing and stop it, open the strands out into yarns and take out as many of the outside yarns as you think it will require to make you knittles, by splitting your yarns and making one knittle out of every outside yarn, then when they are made stop them back on the standing part of the rope, then form your point, with the rest of the yarns, by trimming and scraping them down to a proper size, then marl it down with twine, then divide your knittles, taking every other one up, and every other one down, then take a piece of twine which is called the warp, and pass three turns very taut, taking a hitch with the last turn, every time you pass the warp or filling, then take the knittles which are up, and bring them down, and the ones which are down up, hauling them taut, and passing your warp, every time over your lower knittles, proceed in this way till you get almost to the end, reserving enough of your knittles to finish it with, leave out every other bight of the knittles of the last lay, and pass the warp through the bight and haul them taut and cut them off, some have a becket worked in the end.

Note. Knittles are made by laying rope yarns together with your finger and thumb against the twist of the yarn. Snaking, is for the better securing of a seizing, which is passed round the single part of a rope and therefore cannot be crossed. It is done by taking the end part of the seizing under and over the lower and upper turns of the seizing.

SENNIT, MATS &c.

PLATE IV.



G.H. Lewis Lith.

47. *To make a Gromet.*

A gromet is made by unlaying a strand of a rope and placing one part over the other, and with the long end follow the lay till it forms a ring with three parts of the strand all round, finish it by knotting and sticking your ends the same as a long splice. (*See Plate.*)

---

48. *Pass a Rose Lashing.*

It is used in lashing a strop or pudding round a mast or yard, or the parrel lashing of a top gallant yard, the lashing passed cross-ways over and under one eye, then over and under the other, and the end part, afterwards taking in a circular form round the crossing, and the end tucked under the last part.

NOTE. This circular part is done to expand the end in the room of cutting it off so as it will answer again.

---

49. *To Weave a Sword Mat.*

A piece of wood called a sword is used, this is put alternately between the parts of the spun yarn or sennit, stretched over two round iron bolts (as you see in the figure,) the warp of marline is placed

through the parts which the sword has opened and jambed by it close to the head, a piece of spun yarn is put slack through the same division at the opposite end and left there, the sword is taken out, passed under and over the parts as before, and each end of the warp passed and jambed taut, the piece of spun yarn which was left at the opposite end is now lifted up, and brings the parts as they were first divided by the sword, the warp is passed as before, and so on till you complete the mat.

---

50. *A Lashing Cleat.*

Is shaped like the figure in the plate, having a score for the seizings which are snaked, and a groove cut in the part that fits next to the shroud.

---

51. *Blocks.*

A SHELL PIN AND SHEAVE.

Blocks are of different shapes, according to the purposes they are used for. A block consists of a shell, sheave, and pin, and from the number of these sheaves it derives its name, viz: a block with one sheave is called single, with two, double, and with three treble, and with four sheaves it is called a four-

fold block. The shell of a block is made of ash and has one or two scores cut at each end according to its size, these scores are for the purpose of admitting a strop which goes round the block, and in its centre is a hole for a pin, the shell is hollow, and in the inside, is placed a solid wheel called a sheave, made of lignum vitæ, iron or brass, in the centre of this sheave is a hole for a pin, on which it turns, the lignum vitæ sheave is bushed with brass or iron, round the circumference of the sheave is a groove, that the rope which goes over it may play with ease, the sheave is placed in the shell, and the pin is put through both shell and sheave, which constitutes a block.

---

52. *Single Block.*

What is termed a single block, has but one sheave, but sometimes two scores on the outside of the shell, if it is intended for a double strop, single blocks are more used than any other kind on board of a ship.

---

53. *Double Block.*

Is the same as a single, with one more sheave.

---

54. *Treble Block.*

Is made in the same way as a double, with one

more sheave. Treble blocks are generally used as purchase blocks, and stropped in the manner you see in the plate.

---

55. *A Shoulder Block.*

A shoulder block is the same as a single block, excepting that it has a kind of a shoulder or projection at the bottom part of the shell, to prevent the rope which reeves through it from jambing between the block and the yard; those blocks are mostly used for bumpkin or lift blocks on a lower yard.

---

56. *A Fiddle Block.*

Is made like two single blocks one above the other, the upper one being the largest so as to allow the rope which is rove in the upper sheaves to play clear of the rope in the under one, those blocks are used in places where there is not room for a double one, or in places where a double one would be liable to split by not canting fair, or having room to play.

---

57. *A Shoe Block.*

Is also made like two single blocks, but the

sheave of the upper one lies in a contrary direction to that of the lower one. They are generally used as buntline blocks to courses, the buntline reeving in the upper sheave, and the whip in the lower one.

---

58. *A Sister Block.*

Has two sheave holes one above the other, a score for a seizing between the two sheaves and one at each end for the same purpose, they are hollowed out on each side of the shell, so as to let the shroud lay in it, those blocks are used as top-sail lift blocks, and seized in between the two forward shrouds of the top-mast rigging, above the futtock stave, the lift reeves in the upper sheave hole, and some people reeve the top-sail reef tackle in the lower one.

---

59. *A Monkey Block.*

It is made with a saddle to nail upon the yard for the buntlines to reeve through. Sometimes it has a swivel above the saddle to permit the block to turn round, when they are used as leech line blocks. These blocks are all got out of fashion now-a-days.

---

60. *A Dead Eye.*

Is a large round piece of wood with three holes in

it (as you see in the plate,) and a groove cut round it for the shroud to lie in. It is used to turn in the ends of shrouds and back-stays, and the three holes are used to reeve the lanyard through, when setting up the shroud or backstay.

---

61. *A Bull's Eye.*

Is a kind of a thick wooden thimble with a hole in the centre, and a groove cut round the outside for the rope or seizing to lay in.

---

62. *A Heart.*

Is a block of wood with a large hole in the centre, at the bottom of which are four or five scores, and round the outside is a groove cut to admit a rope called a stay; there are other hearts called collar hearts, which are open at the lower ends, opposite to which the lanyard is passed. This heart has a double score cut round the outside, and two grooves cut on each side for the seizings to lay in, which keeps the collar in the scores of the heart.

---

63. *A Belaying Pin Rack.*

Is a piece of wood which has a number of holes

through it, in which belaying pins are stuck, on the back part are several scores for the shroud to lie in, to which it is seized.

---

64. *A Euphroe.*

Is a long piece of wood having a number of holes through which the legs of the crowfoot is rove, a score is cut round it to admit of a strap, this is used for the ridge of an awning.

---

65. *A Horn Cleat.*

Those cleats are used for different purposes, some are made to seize on to the shrouds, those are called lashing cleats, others are made to nail on to different parts of the bulwarks, they are of different shape and size, and used to belay various ropes to in all parts of the ship.

---

66. *A Bee Cleat.*

Is a piece of wood scored out inside, something like the letter B, and rounded off outside, they are used for leading a rope through, or for keeping it in its place, on the masts, bow-sprit, &c.

67. *A Strop for a Block.*

Strops are fitted in various ways according to the use they are intended for, and according to the size of the block. A common strop is fitted in the following manner, you first cut your rope once and a half the round of the block, then get it on a stretch, worm parcel and serve as near to the end as possible, not to interfere with splicing, then take and splice the ends together with a short splice, and finish serving, snug up to the splice, stretch it and cut your ends off, or you may serve over the ends, and it will appear as in the plate.

---

68. *A Tail Block.*

Is stropped with an eye splice, snug round the block, the ends are stuck but once, and the ends scraped down, and served over with spun yarn, you then clap on a stout whipping about six inches from the splice, open the ends out, twist them into foxes and pleat them together as mentioned for gaskets, or you may open the strands out and marl them down selvagee fashion, tapering it a little towards the end of the tail.

Note. Those used for jiggers have a double tail made in the same manner.

BLOCKS, STRAPS &c.

PLATE V.

Horn Cleat

A Bee Cleat

A Heart

A Shoulder block

Shell

Pin

Sheve

Purchase blocks

A Heart for a collar

Fiddle block

Single block

A Strap for a Block.

Nine pin block

Shoe block

Double block

Top block

Sister block

A Rack

Cat block

Monkey block

Treble block

Dead eye

Snatch block

A Tail block

Bulls eye

A Euphroe

69. *A Purchase Block.*

Is double strapped, having two scores in the shell for that purpose, the strap is wormed, parcelled, and served, and sometimes only wormed and parcelled and spliced together. Then it is doubled so as to bring the splice at the bottom of the block. The seizing is clapped on the same as any other, the only difference is, that it is crossed both ways, through the double parts of the strop. These block strops are so large and stiff, that it requires a purchase to set them into the score of the block, and show them their proper place.

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70. *A Top Block.*

Is a single iron bound hook block, it hooks to an eyebolt in the cap, and is used for reeving the top pendants through, when swaying up top-masts.

NOTE. They have generally got a brass sheave.

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71. *A Cat Block.*

The cat block is three fold, and iron bound, it has got a large iron hook attached to it, for the purpose of hooking to the ring of the anchor when catting it.

NOTE. It has got two small eye bolts one on the

forward side of the shell, to fit a small bridle in, which is called the back rope bridle, used in hooking the cat.

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72. *A Snatch Block.*

Is mostly iron bound with a swivel hook, and an iron clasp is fitted on the strap with a hinge, which goes over the snatch and toggles on the opposite side, as you see in the plate. This is used for placing the bight of a hawser or large rope in when warping the ship, &c.

Note. There are several different improvements made on these blocks.

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73. *A Nun Boy.*

These are shaped as you see in the plate, a kind of a cask, which is large in the middle and small at both ends, and hooped close with iron hoops, and stropped with rope well served, the strops of those buoys, are cut nine times the length of the buoy, which will make the slings and hoops, the slings have an eye spliced in each end, the hoops are rove through those eyes, and then spliced together, and fitted on the buoy as you see in the plate.

74. *To Bend a Buoy Rope.*

It is made fast with a clove hitch round the arms of the anchor, close up to the crown, and the end part is stopped along the shank, with one or two stops.

NOTE. Some are fitted with a running eye, and when they are used this way, the running eye is rove round one arm, and a hitch taken over the other, and seized in the cross. In large ships they are fitted with pendants and slip buoy ropes, the pendants have a large thimble spliced into the end, large enough to receive a stout hawser, in case you should want to purchase your anchor by the buoy rope. The size for the slip buoy rope is one third the size of the proper buoy rope.

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75. *To Pudding the ring of an Anchor.*

The ring of the anchor is well tarred and parcelled with tarred canvass, then a number of lengths of old rope, are cut three times the diameter of the ring, these are laid on the ring, and stopped by a temporary seizing in the middle, then they are placed fair by hand round the rings as you see in the plate. When a turn or two of ratting stuff is taken round all parts, and a heaver being put through it, it is hove

well round, which stretches all parts snug round the ring. After it is all hove on snug put on your seizings, four in number (as you see in the plate.)

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76. *To make a Jacob's Ladder.*

Those ladders are used for many different parts of a ship of war, they are used for stern ladders, and the swinging booms in harbour, rigging ladders, &c. They are made in many different ways, some are made selvagee fashion, and covered, others are made of four stranded rope, and have the rounds put through between the strands of the rope. But the most common way of making those ladders is to take some small rope, about two inch stuff, and make two long straps the length you intend to make the ladder, and splice them together with a short long splice, your straps now being made, get them on a stretch both together, and see if they bear a strain both alike, if not you must shorten one strap, so as to make both alike. Take a piece of chalk and mark them off where you intend the rounds to go, about fifteen inches apart. (The rounds are pieces of round wood, about two inches in diameter, with a score in each end for the rope to lay in, made the length required,) you then put your rounds in, between both parts of the rope, exactly at the chalk

mark, having got them all placed, commence and seize them in by putting on a snug seizing of marline on each side of the round, you may parcel, leather, or serve in the nips, just as you like.

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77. *Can Hooks.*

Are broad flat iron hooks in the eye of which there is a thimble inserted. What is called a pair of can hooks, is a piece of rope four or five feet long, or long enough to span a cask from chime to chime, when fitted one of those hooks are spliced into each end of this rope, it is then got on a stretch, wormed, parcelled and served, some people seize a thimble in the bight.

NOTE. Some are fitted with chain, with a large iron ring in the middle. (*See Plate.*)

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78. *Hogshead Slings.*

Is a piece of rope about five fathoms long and from five to six inches in circumference, with a large thimble spliced in one end, and the other end well whipped, those are used to sling large casks, being more secure than can hooks, to sling a cask with. Those slings, you take and reeve it through the thim-

ble around one end of the cask, hauling it well taut, then take the end-part of the slings, round the other end of the cask, and take two half hitches round the standing part, and it is done.

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79. *Barrel Slings.*

Are used the same as a long strap, spliced with a short splice, and made long enough to go round a barrel, and reeve one bight through the other, some are made long enough to sling two or three barrels at a time.

Note. They are generally made of three inch rope.

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80. *A Single Whip.*

A single whip is the smallest and most simple purchase that is rove. It is made by reeving a rope through a single block, as you see in the plate.

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81. *A Gun Tackle Purchase.*

Is made by reeveing a rope through a single block, then through another single block, then make the end

fast to the one you first rove it through, or splice it in to the bottom of the block for neatness. (*See Plate.*)

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82. *A Luff Tackle Purchase.*

Consists of a double and single block, the fall is rove through one of the sheave holes of the double block, then through the single one, through the double one again, and the end makes fast to the single one, with a becket bend, to a becket in the bottom of the block. (*See Plate.*)

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83. *A Top Burton.*

Is rove in the same manner as a luff tackle purchase, the only difference is that the upper block of the burton is a fiddle block, and the luff a double one. (*See Plate.*)

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84. *Whip and Runner.*

If a rope be rove through a single block, it is called a whip as before mentioned, and if the fall of this whip be spliced round the blocks of another whip, it becomes whip on whip, or whip and runner. (*See Plate.*)

85. *A Runner and Tackle.*

Is the same purchase as a luff tackle applied to a runner, which is a large rope rove through a single block, with a hook spliced in one end. (*See Plate.*)

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86. *A Two-fold Purchase.*

Consists of two double blocks, the fall is first rove through one sheave of the upper block, then through one of the lower one, then through the upper one again, then through the lower one, and make your end fast to the upper block.

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87. *A Three-fold Purchase.*

A three fold purchase is rove in this way, the blocks having one more sheave, only that you commence to reeve your fall in the middle sheave first, instead of one of the side ones which brings a cross in the fall, the reason of it being rove this way is that the heaviest strain comes first on the fall part, and if it was rove in the side sheave it would have a tendency to cant the block in the strop, and split the shell of the block and cut the fall, but when it is in the middle sheave it draws all down square alike.

G. W. Lewis. Lith.

Three-fold purchase

Single Whip

Whip & runner

Jacob's Ladder

Gun tackle purchase

Catting an Anchor

To Strap a nun-buoy

Luff tackle purchase

Can Hooks

Top Burton

Padding the ring of an anchor

Barrel Slings.

Long-tackle

A Buoy-rope Bend.

Hogshead Slings

Runner & tackle

PLATE VI.

88. *Names of Ropes.*

The names of the different kinds of rope, are designated as follows, hawser laid and cabled laid rope is all the same thing, it is composed of nine strands, each strand having an equal number of yarns. These nine strands are laid into three, by twisting three small ones into one large one, then the three large are laid up, or twisted together left handed, which makes the nine strands; this is a hauser laid rope. A common or plain rope is composed of three strands of an equal number of yarns twisted together. Shroud laid rope is made in the same way, only that it consists of four strands in the room of three, and a small strand which runs through the middle, which is termed the heart of the rope, when plain laid rope, is laid up left handed, it is called back laid rope; there is four stranded hawser laid rope which is used for stays, &c.

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89. *Rig Ship, To get sheers on board.*

Take in a sufficiency of ballast to steady the ship, shore the decks from the skin up, and particularly abreast of the partners. Sling skids up and down the sides, and reeve the parbuckles, bring the sheer legs alongside, with their small ends aft, and par-

buckle them on board, raise one leg over the capstern, and lay the heads on the taffrail.

Parbuckle the shoes on board, and place them under the heels. Square the heels, placing them nearly amidships, cross the heads and clap on the head lashing of new well stretched rope (*figure of* 8 *fashion*) similar to a throat seizing, and dog down the ends. Lash on the main purchase block, so that it will hang plumb under the cross. Middle a couple of hawsers, and clove hitch them over the sheer heads, having two ends leading forward, and two leading abaft, through viol blocks toggled to the bow and stern ports, and stout luffs clapped on them. Lash the small purchase block on the after fork of the sheers, so high up, that the falls may play clear of each other, and a girtline block above all. Lash hawsers to each sheer leg about one third down for belly guys, and a cleat, as an additional security (belly tackles may be used.)

Take the lower purchase blocks forward, lash them securely and reeve the purchases (with the fall part through the middle sheave first) and reeve girtlines. Lash the heels temporally to the shoes and spread them, thus tautening the head lashing. Have forward and after heel tackles, hook them all aft and bouse the sheers as much over the stern as possible. Hook athwart-ship tackle to the heels, and bouse it well taut. To relieve the water ways, pass a bul-

wark lashing round the heels to assist the heel tackles. Lead the purchase falls to the capstern, take in the slack of the forward guys, have hands to attend the after one.

NOTE. Skids which are slung up and down the sides, are for the purpose of keeping the sheer legs clear of the channels, and from thence to the plank shear.

Mats should be placed over the quarter gallerys to prevent injuring. The parbuckles are hawsers which are middled, the ends of which, are taken through two ports which are five or six ports apart, from outside in, down over the rail, under the sheer legs, up again through snatch blocks in the opposite water-way, and luffs clapped on them. The counter parbuckles are used to ease the sheer legs down on deck, and are rove through the gun deck ports, mats should be in wake of the chafe, where the parbuckle leads over the rail, or up through the gun deck ports.

The shoes are made of either stout oak plank or beam timbers of pine, and long enough to extend over at least three beams, with a saucer in them for the heels to rest in, and mortices or bolts in each end to lash the heels to, (be particular in shoring the decks, under the shoes.) In spreading the heels, care should be taken that the extent between them does not exceed the breadth of beam, abreast of the mizen partners.

90. *To Raise the Sheers.*

Man the capstern, heave round steadily and bouse upon the guy tackles at the same time. When nearly perpendicular, avast heaving, getting the strain upon the forward and after guys, secure the guy falls, hook the forward heel tackles, forward, and haul it well taut and lash the heels securely to the shoes, come up purchase and bulwark lashings, wet the decks in the wake of the shoes, let a hand attend the forward heel tackle, to slack as they haul aft, and transport the shears to just forward of the mizen partners, where make all fast. The heels should be over a beam if possible, and the heads should be plumb with the partners.

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91. *To take in the Mizen Mast.*

Tow the mizen mast alongside with the head aft, and the garland lashed on to the forward part of the mast, the distance from the tennon to just above the spar deck partners, lash a pair of girtline blocks on the mast head, and reeve the girtlines, bend the sheer head girtline to the mast below the bibbs to cant it. Overhaul the main purchase down abaft, thrust the strop through the eyes of the garland; toggle it and secure the toggle by a back lashing, take the fall to the capstern, and heave around, when the heel rises

near the rail, hook on a heel tackle to ease it in aboard, bouse upon the girtline and get the mast fair for lowering, wipe dry the tennon, have carpenters below attending, white lead the step and tennon, lower away and step the mast, pass a couple of strops around the mast, hook the double block of the pendant tackles to them, the single ones to the sides and haul taut, wedge the mast temporarily, come up purchases, man guy and heel tackles, wet the decks and transport the sheers forward for taking in the main mast, observing to come up athwartship tackles in the wake of all obstructions, take the mast-head girtline forward to steady the mast.

NOTE. Garlands are made of new stretched rope, salvagee fashion, well marled together, then parcelled. They are then laid on the forward part of a mast, and a stout lashing clapt on over all, and crossed between the garland and mast. The reason why the mizen mast is got in first, is because the breadth of beam is less aft than forward, and consequently the head lashing becomes tauter, the heels being spread more as they go forward, moreover if the mizen mast was taken in last, the bowsprit must be got in first, thus the opportunity of securing the sheers to the foremast head, would be lost.

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92. *To take in Main and Foremast.*

Proceed as in getting in the mizen mast, with the

exception of using the small purchase, the garland for it being lashed about the diameter of the mast above the main one.

Note. If in taking in either of the masts, the sheers should be found rather short, the difficulty may be remedied by manning the forward guy falls and making them perpendicular to the deck, if only a few inches are required, this may be sufficient. Some distance may also be saved by using no garland, and let the purchase block be lashed to the mast. If in lowering, there should still be a difficulty, chocks might be placed on the kelson until the tennon rested on them, then steady the mast by the small purchase and sheer head girtlines, while the main purchase is unlashed, and lashed again higher up the mast, sufficient to step it. If the ship has a top gallant forecastle, it would be well to step the mast forward of the sheer legs, for the brake of the forecastle comes abreast of the partners, and in a case of that kind it would be well to take in the foremast first.

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93. *To take in the Bowsprit.*

Transport the sheers as far forward as possible, or as the bows will permit, send a hand to the sheer head, bend on the girtlines to the small purchase

block and light it up and unlash it, and lash it again to the forward fork of the sheers, pass a strop around the foremast head, and hook a large tackle to it which carry aft and set well taut, lash a couple of large single blocks to the foremast head, middle a hawser and clove hitch it over the sheer head, take the ends through the blocks at the mast head well aft, and take a turn, hook the after heel tackles forward, and take the after guys aft, pass a bulwark lashing around each heel, rake the sheers over the bows that the main purchase may hang directly over the gammoning scuttle, and make all fast. Overhaul down the purchases and toggle them, the bowsprit being brought under the bows with the head forward, and garlands lashed on, the main one a little more than one third from the heel, the smaller one, between the cap and bees, having guys leading from the bowsprit to the cat heads, and a couple of strops, around the heel to hook the bedding tackle to. "Sway away" attending it by the guys and get it nearly perpendicular, when hook bedding tackles, taken from the bitts on main deck, up through the partners, wipe the tennon dry, whitelead both it and mortice, "Lower away" bouse upon the bedding tackles, and bring it into its place, come up purchases, guys, unlash garlands and proceed to dismantle the sheers. If your ship has a top gallant forecastle, you cannot take in your bowsprit with the sheers, on account of the brake of the forecastle.

Note. In rigging a stage under the bowsprit, make use of two small spars, such as top gallant studding sail booms, with their heels resting on the head rail, and their heads lashed together and slung from the Bowsprit end, and boards laid across, one from another. The gammoning is of new well stretched rope, generally water laid. It would be best to get a caulkers stage or a camel under your bows if handy, and haul it lengthways under your bowsprit, and overhaul a stout tackle and hook on to the other end of your stage, and haul well taut. Send the men on the stage and set up the gammoning.*

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94. *To Rig the Foremast.*

White lead the mast head in the wake of the trussel trees, overhaul down the girtlines bend on the trussel trees, and sway them on board, take out the after chock, wlpe them dry, bend the girtlines to the forward part, and stop the girtlines to the after part, bend the main girtline to the after part also, and sway away having a steadying line forward to keep the trussel trees from catching under the bibbs for if they are heavy, one man aloft cannot bear them off from under the bibbs, when above the bibbs send a hand aloft to slip the stops one, at a time

* See gammoning the bowsprit, in miscellaneous articles.

so as they won't go with a surge. Lower away, bouse aft on the after girtlines, and get the trussel trees in their places, send aloft the after chock, ship and bolt it, tar the mast head in the wake of the rigging, overhaul down the girtlines for the bolsters, which are tarred and parcelled, sway aloft and stop them, lash the girtline blocks to the after part of the trussel trees, and have hand girtlines and stirrups for the man aloft to stand in at the mast head. Take pendant tackles forward to steady the mast for rigging, overhaul down the girtlines, send aloft the lower pendants which have got a long and short leg fitted together with spans so as to form a square, the size of the mast head, the long leg is placed abaft, so that in case the fore stay is shot away, the pendant tackle can be hooked in them without being in the way of the fore yard in bracing, while the leg being abaft the mast affords them good security. The rigging is got on board on its respective sides, and its eyes opened out and bent in the proper way for going over, measure the length of the mast head, below the eye seizing of the first pair of starboard shrouds and rack them together. Turn a toggle in one end of the girtlines, let the other be bent so as to act as a down haul, and thrust the toggle between the legs of the shroud, stop the girtlines to the eye seizing and to the middle of the eye, sway aloft and when the stop comes to the block, cut it and bend on the hand

girtline, sway higher and cut the other stop, let the man at the mast head, bear the eyes over, lower away and beat it well down with a commander, observing to have the eye seizing come as near the centre of the mast head as possible, and get over the larboard pair in the same way, turn in the dead-eyes with the lay, reeve lanyards and set up both pair of shrouds at the same time, taking care to give the mast its proper stay, and get over all the shrouds after the same manner, and set them up as the two forward pairs were, and shift the girtline to the mast head. Overhaul down the girtlines forward of the mast, bend on to the forestay, sway aloft, bear the legs on opposite sides of mast head, and lash them together above the eyes of the rigging, turn in the heart with the lay of the rope, reeve the laniards on the bight and set it up, next get aloft the spring stay in the same manner.

Note. The trusseltrees, might be got over without knocking out the after chocks, by running up a derrick abaft the mast, well lashed abaft below the bibbs, having chocks placed between it and the mast, sufficient to admit of the free passage of the after chock of the trusseltrees, they are sometimes got on, before getting in the mast, but they then bring an additional and unnecessary weight upon the mast head, and moreover in lowering, catch over the shear head.

95. *To Rig Main and Mizen Mast.*

Proceed in the same manner as directed for fore mast, the main mast of a frigate has one more pair of shrouds, and the mizen three less than the fore, there is only one pair of mizen pendants, which go either with a cut splice or with the odd shrouds.

NOTE. The stays are lashed above the eyes of the rigging at first, so as to give them a close fit down about the mast head, and shifted down afterwards.

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96. *To Get the Tops over.*

Overhaul the girtlines for the cross trees, white lead the scores in the trusseltrees, and ship them, fit a pair of span blocks over the mast head, through them reeve stout girtlines, overhaul them down abaft the rigging alongside and bend them on to the top and hitch them to the pigeon holes and bend the main girtline to the after rim of the top. "Sway away" and ease them in board, now pass the girtlines properly, by taking them under the forward part of the top up through the girtline holes, around the wing of the top and hitch them to their own parts, stop them to the pigeon hole and bend the main girtlines to the after part of the fore top. "Sway away," guying it clear of trusseltrees by the main girtlines, and bend a tripping line to the pigeon hole,

leading from the bowsprit end; when high enough slip the stops, cant over by the tripping line, lower handsomely, ship it fair and toggle it. The main top is guyed clear by the mizen girtlines, and is canted by a tripping line from the foremast head, the mizen top has guys from the taffrail and a tripping line from the main mast head.

Note. In cold weather, it would be best to get the top over before rigging the mast, in order to give the men more security, and then a derrick rigged on the top would be the best way to get the rigging over in a heavy ship.

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97. *To swifter in the Lower Rigging.*

Lash capstern bars to the rigging three fourths up, having parcelling in the wake, and clap a tail block around each shroud and the bars, middle the swifter and reeve the ends through the middle blocks, on each side, then through the others alternately, one leading forward, the other aft, and taking them through leading blocks in the opposite water ways. Measure one third of the breadth of the top, and lay it off on the forward shroud on each side from the upper part of the trusseltrees down, and then seize on the futtock staffs which are of iron, and well leathered. Seize on a catharpin leg on each side,

and swifter the rigging until the eye of the other end meet the opposite side, then seize all on, come up the swifter, send down the bars and blocks, (the forward and after shrouds are not swiftered in,) ship futtock plates, hook and set up futtock shrouds, ship toprail and reeve fancy lines. Above the fore catharpin legs, seize on collar and bull's eye for the main topmast spring stay to reeve through. The collars for the main and mizen topmast stays are above the eyes of the fore and main rigging.

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98. *To set up Lower Rigging.*

Unhook the pendant tackles from the strops below the bibbs of the mast, and hook them to the runner pendants; clap selvages on the rigging, having old canvass in the wake, and hook the single blocks of the luffs to them, catspaw or toggle the lanyard to the double blocks, overhaul the pendant tackles and black wall the ends of the luff tackles to the lower blocks. Set up the rigging for a full due, observing the same precautions as when it was first set up. The end of the lanyard is backed around one part of the shroud, above the dead eye, jammed well taut, with the pendant tackles, then expended round both parts and stopped to the shrouds. Now seize on the shear poles, cap and square the ends and seizings, and come up the lower stays, settle the eyes down

over the eyes of the rigging, and set them up in the same manner as the shrouds, except reeving the lanyard upon the bight. Spar and rattle the rigging. The mast being stayed, they may be permanently wedged and coated.

Note. In setting up the rigging at first, the lanyards are only rove double and well greased; the knot of the lanyard should be inside on the end part of the shroud, the dead eyes are at first turned in with the shroud. In setting up for a full due, turn in the dead eye properly, and reeve the lanyards full. The reason for setting the eyes of the stays down over the eyes of the rigging, is to clear them of the topmast fid and foot of the topsail.

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99. *To get on board the Topmast.*

Overhaul the girtline and send up lower cap shores, top blocks and fids, together with a large single block, which lash over the eyes of the rigging, with a lashing long enough to allow (or you can lash it half mast head high, which is the best way,) the block to hang abreast the bibbs of the mast. Through this block reeve a large hawser, leading the end down forward of the rigging, through the upper sheave hole in the heel of the topmast, and clove hitch it round the mast head and the other part, rack both parts together in several places, man the other end

and sway away; when high enough, bend on a rope to ease it in board, place the round hole in the lower cap over the square hole in the trusseltrees, and point the topmast through it. If the topmast is too long to point, lower the heel down the scuttle forward the mast, and then point it.

When the head passes through the round hole in the cap, pass a lashing from the bolts on one side across the mast head to the bolts on the other side, take a couple of stout strops through the fid hole, hook the pendant tackles on to them, and haul them taut. Come up the hawser and unreeve it from the sheave hole, get a hawser in the fid hole and have a slew rope to it, whitelead the masthead, also the ends of the shore and sway up; when high enough, slew fair, ship the cap and shore it, beat it down in its place, tack a sheet of lead over the lower mast head to protect it from the weather, hook the top blocks, round up, reeve and hitch the top pendants and hook the top tackles, sway the mast up a few feet above the lower cap, come up the pendant tackles, take the heaver and strops out of the fid hole of the topmast.

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100. *To rig the Topmast.*

Fit the span blocks over the mast head, reeve the girtlines and overhaul them down abaft for the cross-trees, bend on and sway them in board, place them

abaft their respective masts, with the forward part uppermost; bend the girtlines to the afterpart, and stop them to the forward part, having a guy from the deck to clear them of the tops as they go aloft, "sway away," rest them on the lower cap abaft the topmast, passing stout lashings through the quarter bolts in the cap and around the afterhorns of the crosstrees, cast off the girtlines and take off the span blocks, whitelead the masthead, in the wake of the crosstrees, lower away the mast, and as it goes down, bear over the round hole in the cap, sway again and beat them down in their places; tar the masthead in the wake of the rigging, send aloft and stop the bolsters, get girtlines on the horns of the crosstrees, sway aloft, place the ginn span, and hook the ginns which mouse. Get over the burton pendants, hook the top burtons and set them taut to a strop passed around one of the topmast dead eyes, hitch a small hawser, or a stout rope around the hounds of the topmast, which set taut forward. Man the top tackles, sway aloft, and fid the topmasts. Now rig the mast head by getting over the starboard and larboard shrouds alternately, breast back stays, standing back stays, fore and aft and jib stays, turn in the dead eyes, reeve the lanyards, and set up the rigging the same as the lower rigging was, reeve and set up the stays also, in the same way, stay the mast by the fore and aft stays; now fit over the lower mast head slings for the lower

yards, and the fire slings, which are fitted over the collars.

NOTE. The topmasts are fidded before rigging, to avoid the greater strain upon the top tackles. If a topmast has only one sheave (like a mizen topmast,) it is a good precaution to reeve a hawser through the fid hole, haul it taut as the mast goes aloft, unreeving it only when the mast is high enough for fidding. As the lee breast back stays bear play, they are put on before the standing ones, so that the latter ones may keep them steady in their places. The topmast spring stay may either have their collars dipped through those of the standing stays, or they may go above the masthead first. The rigging may be set up with burtons or a Spanish windlass. There is no mizen topmast spring stay.

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101. *To get on board and rig the Jibboom.*

Hoist the boom on board by the hawser which was left at the fore mast head, when getting on board the fore topmast, run the end out on the bowsprit, pointing it through the stay collars and bowsprit cap, reeve the heel rope and sway out a foot or two beyond the cap, put on the traveller, reeve the jib stay through the hanks, through the traveller, then through the inner sheave hole in the boom end, and turn in a double block in the inner end; reeve the

lanyard through this and a single block bolted to the bows, to the traveller seize the jib, downhaul blocks and travelling guys, tar the boom end, put a grummet over, to which seize the fore top gallant bowline blocks. Next the foot ropes, which set up to bowsprit cap, next the standing guys, and lastly the jib martingale block. Ship the wythe for the flying jibboom, get gobb ropes on the dolphin striker, reeve the jib martingale, man the heel rope and run out, pass the heel lashing, set up the martingale and jib stays.

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102. *To Swifter in Top Mast Rigging.*

Do this similar to the lower rigging, seize the futtock staffs and catharpin legs, square the dead eyes of the rigging, set it up for a full due, seize on the sheer poles, cap and square the end seizings, spar and rattle it down.

Note. The futtock staffs are seized on the inside of the rigging, to counteract the effect of the top gallant rigging, which leads over them. The catharpins go around the topmast, both ends setting up on the same side.

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103. *To rig the Sprit sail Yard.*

Sway it on board by the hawser at the fore mas head, and get it fore and aft on the larboard side of

the forecastle, with the starboard yard arm forward, middle the yard, parcel and leather the slings, fit the tye, seize on the parrel straps for the flying jib sheets, jib and flying jib guys, tar the yard arms, put on the grummet and foot ropes, which reeve through stirrups nailed on the yard at equal distances, and set up to the opposite quarters of the yard, seize on blocks for the forward lower boom guys, spritsail brace blocks and lifts, reeve the lifts and braces, bending on ropes-ends if they are not of sufficient length, the starboard one being taken under the bowsprit clear of every thing, clap a block on the fore top mast spring stay, reeve a hawser for a yard rope, bend it to the slings of the yard, and stop it out to the yard arm, hook a tackle to the bowsprit end, and to the slings to assist in getting it out, sway out, take through the slack of the lifts and braces, slip the stops and get the yard in its proper place, steady it, hook the tye, pass the parrel lashing, and square it, unreeve the hawser, get the block off the spring stay and tackle from the bowsprit end, reeve the jib guys through their thimbles on the spritsail yard, turn in dead eyes or cleats, and set them up to others on the bows.

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104. *To Get on board Rig and Send aloft Top Gallant and Royal Masts.*

Overhaul the girtlines, send aloft topmast cap,

and shore together with a small spar to ship the cap with, place the round hole of the cap over the square of the cross trees, get the girtline on the heel of the small spar, point it through the cap and lash them together, white lead the tennor of the mast and the ends of the shore, sway aloft, ship the cap and shore, then beat the former down in its place, hook the top gallant top blocks, round up and reeve the top gallant mast rope, the top gallant rigging is fitted on a sheet iron cylinder attached to the jack cross trees (by an order from the Navy Commissioners) leathered and painted on the inside, and tarred on the outside, put on the grummets and strops for the main royal stay to reeve through, then put on the top gallant and flying jib stays, starboard and larboard shrouds. breast and standing back stays, and secure them over the top of the cylinder, overhaul the girtlines, bend them on the rigging, around all parts about the length of the mast head below the Jack, and a good stout stop through the cylinder, sway aloft, cut the stop when high enough and place it over the topmast cap, having the hole in the cylinder directly over the round hole in the cap, and lash it there, cast off and unreeve the girtlines, and reeve the top gallant shrouds through the holes in the corners of the cross trees, over the topmast futtock staffs, down in the top, where turn in the dead eyes and reeve the lanyards. The royal rigging is rove

through the jacks, over the top gallant futtock staves, down in topmast crosstress, where turned in (in some ships the royal rigging comes straight from the jacks, down into the top, and set up with a gun tackle purchase, the same as a breast back stay) thimbles are spliced in and lanyards. Overhaul the mast rope down through the trusseltrees of the topmast, and reeve it through the fidhole in the top gallant mast, hitch it to its own part and stop it along the top gallant and royal pole, at different distances; "sway," ease it in board, guy it clear as it goes aloft, point it fair and sway the head a foot or two above the rigging. White lead the royal mast head, send aloft the truck, ship it, reeve the signal halyards and attach the conductor; "sway higher," get the royal rigging down in its place, also painting above the eyes as before, now light up the rigging and fid the top gallant mast, set up the top gallant rigging in the top and the royal rigging in the cross trees or the top, steadying the mast by the fore and aft stays and back stays, tack a sheet of lead over the topmast head, to keep the weather out.

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105. *To Get on board and Rig the Flying Jibboom.*

To get on board and rig the flying jibboom. Sway it on board and get it on the larboard side of the

forecastle, clap on a tail block on the jib stay, close down to the boom and through it reeve a heel rope which take through the sheave hole in the heel of the flying jibboom, out again and hitch it to its end, rack both parts together, and make a rope fast to the heel, to serve as a guy, sway out the boom, assisting it with slip ropes, point the end through the withe, and hitch the end of the heel rope to the jibboom end. Cut the stop and rig the boom out a foot or two. Tar the end, put on a grummet and foot ropes, guys and martingale, reeve the martingale, flying jib and royal stays, man the heel rope, rig out the boom, pass the heel and belly lashings, set up the martingale, then stay the fore top gallant and royal mast, fore and aft, by the stays and back stays, reeve the flying jib guys, turn in thimbles and set them up.

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106. *To Get on board and Rig the Topsail Yards.*

Send aloft and lash a large single block to the topmast head, round up and reeve a hawser through it, overhaul it down forward, hitch it to the slings of the yard, and stop it along the yard arm, get it fore and aft in the gangway on chocks, cast off the hawser, middle the yard, leather and tar the slings, lash on the tye blocks, then the parrel, splice in the parrel

lashing, seize the quarter blocks (with a grummet around their strops to prevent spreading,) and then the clewline blocks, rolling tackle and burton strops, tar the yard arms, put on the grummets, jackstays (which reeve through the staples, and set up together in the slings) head earing strops, foot ropes which reeve through stirrups nailed to the yard at equal distances, and set up to the opposite quarters, brace blocks and eye of single lifts, seize on the flemish horses, jewel blocks, see the boom irons on, reeve the braces, and coil the upper lift on the upper yard arm, the lower one in the slings of the yard, a small cleat or saddle, inside of the sheave hole, about two feet, on each yard arm, to keep the top gallant sheets clear of the yard.

NOTE. There are no jewel blocks on the mizen topsail yard.

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107. *To Cross the Topsail Yards.*

Bend on the hawser and hook the top burtons to assist in crossing, (it is preferable to use a whip purchase with a hawser and jackblock in crossing topsail yards) get strops round the quarter and hook the burtons, take a turn with the parrel lashing, reeve the lifts, slip the stops and cross the yard, steady it with the lifts and braces, reeve the tyes,

turn in the fly blocks, reeve and haul taut the topsail halyards, pass the parrel lashing properly, and square the yard.

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108. *To Get on board and Rig Lower Yards.*

Overhaul the hawser from the lower mast head, bend on to the slings of the yard, and get them nearly up and down, clap selvages on the quarters and hook the pendant tackles to them, as it comes on board, cut the stops, easing away on the pendant tackle, and bousing on the other, until the yard is athwart ship, place chocks in the hammock nettings, rest the yard on them, slue them fair and lash them, come up tackles, cast off the hawsers and place a spar under the middle of the yard to prevent its springing, measure the yard, tar and leather the slings, fit a saddle for the D. thimble, which lash on with a piece of well stretched rope, heaving each turn taut with a Spanish windlass, and fitting the score of the D. thimble, cover all with leather and fit the strops for the preventer slings, fit on truss strops, pendants, quarter and clue garnet blocks having a stout grummet around the strops of the quarter blocks, to prevent spreading, to the middle of this grummet seize a slab line block, fit the rolling tackle, burton and quarter lift strops, tar the yard arms and (seize the

leech line blocks to the jack stay with a leg long enough to allow the block sufficient play to brace up) put on head earing strops, foot ropes, yard tackle strops, lift and brace blocks.

NOTE. A piece of well stretched rope is thought to be preferable to a strand in lashing on a D thimble, as it cannot absorb the water so freely.

The cross jack yards has no jack stay, head earings or yard tackle strops, and the brace blocks instead of going over the yard arm are put on some distance inside of the sheave hole for the mizen topsail sheets.

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109. *To Get aloft the Lower Yards.*

Send aloft and lash the jeer blocks, reeve the pendants and falls, hitch the pendants around the quarters of the yard, splice in the lanyard of the D thimble, and take the yard tackles forward, to keep the yard clear of the mast, reeve the lifts and braces, man the lifts and jeer falls; "sway away," and when the yard comes abreast of the futtock staves, pass the lashing of the D thimble, parcel it well, and leather over all, frap all parts together, and cover all with canvass, reeve the truss pendants, turn in the blocks, reeve the falls, haul taut the trusses, square the yard by the lifts and braces.

NOTE. The cross jack yard may be got aloft by the pendant tackles, hooked to the lower cap, or through a strop passed through the pigeon hole of the top, the mast head slings have a back lashing passed abaft the mast head, half way between the cap and top.

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110. *To Get on board the Spanker Boom and Gaff.*

The spanker boom, trysail mast and gaff, may be got on board by the yard and stay tackle. Put the hoops on the trysail mast, and stop them; sway away by a pendant tackle, point the mast head through the after chock of the trusseltrees, stop and lash its head to the mizen mast head, leather the boom in the wake of the crutch, seize on sheet blocks and reeve the sheets, tar the boom, put over the foot ropes, which set up, just out outside of the taffrail and boom guys, which go with a gun tackle purchase to the quarters, hook the topping lift to an iron span around the boom, lead them up through cheek blocks bolted to the mizen bibbs, and set up in the channel with a luff purchase, ship and key the boom, seize on a cleat for the outhaulers, to belay to, then leather the jaws of the gaff, fit throat and peak halyard blocks, brail blocks, vangs and blocks, reeve throat

and peak halyards, hoist up the gaff, and haul taut the vangs.

NOTE. The spencer gaff may be rigged nearly the same way.

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111. *To Get on board and Rig Top Gallant Yards.*

They are got on board, like the topsail yards. Leather the slings, seize on D. thimble, parrel and quarter blocks, rolling tackle strops, tar the yard arms, put on the jack stays, head earing strops, foot ropes, braces and lifts; nail on the stirrups, seize on the foot ropes and set up the jack stays, fit the yard ropes, having lizards and tripping lines, with a grummet to go round the yard rope; when going aloft, bend on the yard rope, and stop the top gallant yard in the rigging, the main on the starboard side, fore and mizen on the larboard side.

NOTE. When the lower stays are fitted with mousings, it is customary to have them on the side opposite to that which the top gallant yards are stopped up and down. The royal yards have a D. Thimble, clue line blocks, head earing strops and foot ropes; the lifts and braces are single, and the eyes which go over the yard arm are stopped together. The yard ropes are fitted the same as those of the top gallant

yard, they are stopped in the rigging the reverse of the top gallant yard.

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112. *To rig a Lower Studding Sail Boom.*

Hoist up, ship and key the boom, put on single blocks for forward and after guys, reeve, hook, and haul taut the topping lifts.

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113. *To rig a Topmast Studding Sail Boom.*

Send the boom aloft by two jiggers, one on the lower lift, and the other one under the forward part of the top, point the boom and clamp the inner iron, put on the tack and lower studding sail halyard blocks, boom lift and brace; over the heel, straps for boom jiggers and heel lashing.

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114. *To Rig Top Gallant Studding Sail Boom.*

Sway it aloft like a top mast steering sail boom, fit a tack block and strap for heel lashing.

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115. *Note.—Rig the Boat and Fish Davits.*

Unreeve all the girtlines, yard ropes, mast

ropes and top pendants, unlash and send down all blocks which are used in rigging spars, unreeve your falls and heel ropes, haul taut top burtons, pendant tackles, stay the mast, seize all blocks in their proper places and reeve the running rigging.

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116. *To Cut the Lower Rigging.*

Take the length from the larboard side of the main mast head, to the forward dead eye in the starboard channels from the section drafts, which set off on the floor of the rigging loft, and stick in a marline spike at each extremity, the shrouding stuff being stretched, stop one end to one of the marline spikes, take the bight around the other and back again, and this is the first pair of shrouds, pass it around again (outside at each end) for the second pair, and continue on in this manner until shrouds enough are warped off. Take one and a half or one and a quarter circumference of the mast head, as may be judged most proper, and chalk it off upon the bights of the eyes also, chalk off the distance for the service to go on, which is generally about the middle third, mark the shrouds, and cut them at the peg in an angular direction, so that the after legs will be a little longer than the forward ones, put them on a stretch, and worm them in wake of the service; begin at each

end where the service is to leave off, and parcel upwards, to the middle of the eye, where commence serving and go downwards on each leg, the eye seizings are round ones, and when clapt on, the whole eye is neatly covered with parcelling, a half sister block is sometimes put between the two forward shrouds for the lower boom topping lift to lead through in seizing on sister blocks, the top of the block should be once of the circumference of the rope below the eye seizing, dead eyes are always turned in with the lay of the rope, having throat quarter and end seizings; to distinguish the fore from the main shrouds, mark the fore with marline, the main with house line, should these marks get off, the fore and main can easily be distinguished by lengths, the starboard shrouds are all shorter than the corresponding larboard ones, by the diameter of the rope, therefore, take the shortest pair for the first pair of starboard shrouds, and the next pair for the first pair of larboard shrouds.

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117. *The Topmast and Top Gallant Rigging.*

Is cut in the same manner. In fitting the top mast rigging, always seize on a sister block between the two forward shrouds for the topsail lift and reef tackles, the swifters are generally served the whole length; the eyes of the top gallant rigging are made

to fit exactly around the cylinder, if there is an odd topmast or top gallant shroud on each side, they are either fitted with a horse shoe eye, or go together with a cut splice.

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118. *The Breast and Standing Back Stays.*

These may be cut by the same rule, the eyes of the breast back stays are fitted in different ways, they are sometimes spanned together making a square the size of the mast head, sometimes they have an eye like the shrouds, made to fit close, and others, a small thimble is seized in the bight, and they are lashed around the mast head ; the eyes of the standing back stays are like those of the shrouds.

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119. *The Catharpin Legs and Futtock Shrouds.*

Take one third the breadth of the top, and lay on that distance from the eye seizing, down upon the shrouds, each side, draw a line across which will represent the catharpins, and measured upon the scale will give their length, splice in eyes at each end, worm, parcel, serve and leather them, the distance from the extremity of the top and this line upon the shroud, will give the length of the futtock shrouds,

which must have a hook and thimble in their upper ends, and a thimble in their lower ends.

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120. *To Cut the Fore and Aft Stay.*

Measure from the after parts of the mast head, where the stays set up, and to the distance add the length of the mast head for collars.

Collars for stays are the length of their respective mast head. The mousings are to be raised one and a half the size of the stays, and at a distance equal to twice the length of the mast head from the mousing. A Flemish eye is worked on the end, and the stay rove through it, or they may be fitted with lashing eyes, in which case each leg is the length of the mast head, the service is continued the length of the eye below the mousing, and then the collars are leathered, the hearts are turned in with the lay of the rope. Stays are wormed, parcelled, served, and leathered in the wake of all nipps, such as the bees, bullock blocks, and sheave holes.

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121. *To Cut the Runner Pendants.*

The forward pair should be twice the length of the mast head; the after pair twice and a half; the thimbles are spliced in the ends, they are wormed

or spanned together, so as to form a span to fit the mast head.

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122. *Bob Stays.*

The bob stays are cut twice the length from the collars, on the bowsprit, to their respective holes in the cutwater. They are wormed, parcelled and served, the whole length, and leathered in the nipp, after which they are rove through the holes, spliced together, and the dead eyes are turned in, in the wake of the splice.

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123. *To Cut Bowsprit Shrouds.*

The length from the bowsprit to the eyebolts, in the bows, a dead eye or heart is spliced into one end and a hook and thimble in the other.

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124. *The Jib and Flying Jib Guys.*

From the boom end to the bows, making a small allowance for reeving, through the straps on the spritsail yard, they are generally fitted with a cuckold's neck, over the boom end, and set up with dead eyes to the bows. The cuckold's neck is served or

covered with canvass. The guys in the wake of the spritsail yard are leathered. The martingales must be cut, and fitted to the manner in which they are rove.

125. *The Running Rigging.*

The running rigging is cut as it is rove, making due allowance for the hands to clap on.

126. *The Main and Main Spring Stays.*

Are lead down; the former on the starboard side, the latter on the larboard side of the fore mast, and set up to hearts bolted to the breast hooks, or around the bitts on their own ports.

127. *The Mizen Stay.*

Is fitted with a shark's mouth, and lashed to eye bolts, abreast the main partners.

128. *The Fore Topmast and Spring Stays.*

Lead through bees, the former on the starboard side, the latter through the hanks, and then through the larboard bees, through strops around the bowsprit,

and either have dead eyes turned in their ends, and set up to the bows, or else on their own parts.

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129. *The Jib Stay.*

Is frequently lashed to the collar of the fore topmast spring stay, rove through hanks, the traveller, and inner sheave hole in the jib boom, and leads in by the jib boom, and has a double block turned in its end and sets up to a single one.

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130. *The Main Topmast Stay.*

Reeves through a bullock block stropped around the foremast head, above the rigging, down abaft the foremast, and sets up to an eye bolt in the deck. The spring stay leads up through a block stropped around the foremast, above the cat harpins, and sets up in the foretop. The mizen topmast stay leads through a block, stropped around the main mast above the rigging, and sets up on its own part.

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131. *The Fore Top Gallant Stay.*

Reeves through the outer sheave hole in the jib boom, and through a bull's eye, hooked to the bows and sets up on its own parts.

132. *The Flying Jib Stay.*

Reeves through the inner sheave hole in the flying jib boom, and sets up like the fore top-gallant stay.

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133. *The Main Top-gallant Stay.*

Reeves through the middle sheave in the after chock of the fore topmast crosstrees, or through a block stropped around the fore topmast head, and sets up in the foretop.

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134. *The Mizen Top-gallant Stay.*

Reeves through a bull's eye in the after part of the main cap, and sets up in the main top.

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135. *The Fore Royal Stay.*

Reeves through the outer sheave hole in flying jib boom ends, and sets up at the bow.

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136. *The Main Royal Stay.*

Reeves through a thimble, stopped around the fore top-gallant mast head, and sets up in the crosstrees.

137. *The Bob Stays.*

After being rove, are set up to their respective collars on the bowsprit.

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138. *The Bowsprit Shrouds.*

After being hooked to their eye bolts in the booms, are set up to their collars on the bowsprits.

The gobblines are either clove hitched, or may go with a cuckold's neck around the end of the dolphin striker, and sets up to the bows one on each side.

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139. *Jib Martingale Stays.*

The jib martingale stay has a knot cast in the end and reeves through the upper sheave hole, in the dolphin striker, leaving the knot on the after side; then through the block at the jib boom end, down again through the sheave hole in the dolphin striker, up through the fair leader, on the bowsprit, and sets up to the bows.

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140. *Flying Jib Martingale Stays.*

Goes over the boom and through the lower sheave in the dolphin striker, up through the fair leader, and sets up to the bows.

141. *Breast Back Stays.*

Have double blocks turned in their ends and set up through thrimble ones in the channels.

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142. *All Standing Back Stays.*

Have a dead eye turned in their ends, and set up to others in the channels, with the exception of the fore, main, and mizen top-gallant back stays, which set up on their own parts.

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143. *To Reeve Running Rigging.*

The lower lifts have single blocks on the yard arms, and a double one fitted to the lower cap. The standing part is made fast to the yard arm, then reeves down through the after sheave in the double block at the cap, out again through the single block on the yard arm, and then down through the forward sheave in the double block at cap.

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144. *The Quarter Lifts.*

Are hooked to strops around the lower cap, and to the quarter lift strops on the yard.

145. *The Topsail Lifts.*

Go with a single eye over the yard arms, up through the lower sheave hole in the sister block in the topmast rigging, and lead in the tops.

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146. *The Reef Tackles.*

Reeve through the upper sheave hole in the sister block at the mast head, through the outer sheave hole in the yard arm, down through the block in the leach of the topsail, and the end is clinched around the yard arm.

NOTE. The more approved plan, is to have pendants and whipps.

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147. *The Top-gallant Lifts.*

Are single, and are seized together, or marled with the braces; they lead through a half sister block, in the top-gallant rigging down into the tops.

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148. *The Royal Lifts.*

Are fitted, and go in the same manner, as the top-gallant lifts.

149. *Spritsail Lifts.*

Are generally single, with an eye over the yard arm, with the end rove through a single block on the bowsprit cap; and then leads in board.

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150. *Lower Boom Topping Lifts.*

Are fitted to reeve through a block, between the forward pair of shrouds, and hook with sister hooks to an eye bolt in a band on the lower studdingsail boom.

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151. *Top Mast Studding Sail Boom Topping Lifts.*

Are fitted, to go with an eye over the boom end, through a block in the mast head pendant, and then down on deck.

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152. *Spanker Boom Topping Lifts.*

Hook to a strop on the boom, lead through cheek blocks, bolted to the mizen mast, and set up in the mizen channels, with a luff purchase.

153. *Fore Braces.*

The standing parts, are clove hitched below the mousing of the main stay, the other part rove through the block on the yard, back again through the blocks bolted to the main bibbs, then down by the main mast to the deck.

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154. *Fore Topsail Braces.*

The standing part, is made fast to the main top-mast head, stopped down to the collar of the stay as far as the splice, through the block on the yard arm, then through a single block lashed to the main stay, a little below the mousing, through leading blocks under the top, and down by the main mast to the deck.

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155. *Fore Top Gallant Braces.*

The standing part is made fast to the main top mast head, rove through a block on the yard arm, back through a block on the main top mast stays, then through leading blocks under the cross trees, and down by the main mast.

156. *Fore Royal Braces.*

A single eye goes over the yard arm, and then reeves through a block lashed under the eyes of the main top gallant rigging, and down on deck by the main mast.

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157. *The Main Braces.*

The standing part goes over the bumpkin end by the quarter galleries, through the blocks on the yard, back again through a block on the bumpkin, and in on deck.

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158. *The Main Topsail Braces.*

The standing part is made fast to the mizen topmast head, then stopped down the mizen topmast stay, below the splice, rove through the block on the yard arm, down through the block fitted with a pendant around the mizen mast, and down on deck.

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159. *The Main Top Gallant Braces.*

The standing part makes fast to the mizen top gallant mast head, then leads through the block on

the yard arm, through a block on the mizen top mast stay below the splice.

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160. *Main Royal Braces.*

A single eye goes over the yard arm, and leads through a block seized on the top gallant stay and down on deck.

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161. *Cross Jack Braces.*

Standing part is made fast to the after main swifter a little above the futtock staffs, it then leads through a block on the yard, back through a block on the after swifter, seized in a line with the futtock staffs and down on deck.

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162. *Mizen Top sail Braces.*

Standing part is made fast to the main cap, leads through a block on the yard, back through a block at the cap, down on deck.

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163. *Mizen Top Gallant Braces.*

Are fitted with an eye over the yard arm, reeves

through a sheave hole in the after chock of the main topmast crosstrees, down on deck.

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164. *Mizen Royal Braces.*

Are fitted with a single eye, and go in the same manner as the mizen top gallant braces.

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165. *Sprit Sail Braces.*

Standing part makes fast to the collar of the fore stay, through the block on the yard, through the block under the fore top, and down on deck by the foremast.

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166. *Topmast Studding Sail Boom Braces.*

A long pendant goes over the boom end with an eye splice, and a single block spliced in the end. The standing part of the brace makes fast to the main rigging, the other end reeves through the block in the pendants, then through a block in the main rigging, down on deck.

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167. *Bowlines.*

The fore bowline reeves through a block two

thirds out on the bowsprit, and then in on deck, to the fore castle.

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168. *Fore Top Bowline*

Reeves through a block on the bowsprit, in on the fore castle.

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169. *Fore Top Gallant Bowline*

Reeves through a block at the jib boom end, through the fair leader on the bowsprit and in board on the fore castle.

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170. *Fore Royal Bowline*

Reeves through a block at the flying jib boom end, in through the fair leader, the same as the fore top gallant bowline.

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171. *Main Bowline.*

The main bowline is a runner and tackle, the standing part made fast to the running part and belayed to the fore fife rail.

172. *Main Top Bowline*

Reeves through a block, bolted to the after part of the fore trusseltrees, down on deck to the side.

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173. *Main Top Gallant Bowline*

Reeves through the sheave hole in the after chock in the fore topmast cross trees, then leads on deck.

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174. *Main Royal Bowlines*

Lead similar to the fore royal bowlines.

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175. *The Mizen Top Bowlines*

Reeve through a block seized to the after main swifter.

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176. *The Mizen Top Gallant Bowlines*

Reeve through a sheave in the chock of the main top mast crosstrees, down on deck.

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177. *The Mizen Royal Bowlines.*

Lead similar to the fore and main

178. *Fore Topmast Stay Sail Halyards.*

The standing part is seized or hitched to the fore topmast spring stay, then rove through a block in the head of the sail, up through a leading block, under the eyes of the topmast rigging, then down on the larboard side to the deck abaft the foremast.

179. *Jib Halyards*

Are bent and rove like the stay sail, leading down on the starboard side of the deck.

180. *Flying Jib Halyards*

Are a single rope hitched to the head of the flying jib, leading through a single block at the fore top gallant mast head, down on deck the larboard side.

181. *Fore Top Sail Halyards.*

The end of the tye clinches around the topmast head, reeves through a block on the yard, up through the ginns of the mast head, and has a thimble spliced in the end, a double block is attached to this thimble with sister hooks, and the halyards are rove like a

luff purchase, connecting the double block with a single one in the channels, there being two tyes and two halyards, one on each side.

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182. *The Main Top Sail Halyards*

Are fitted the same as the fore ones in all respects.

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183. *The Mizen Topsail Halyards*

Have only one tye, which reeves through the sheave hole in the mizen topmast head.

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184. *Fore Top Gallant Halyards.*

The tye hooks to a thimble and reeves through a sheave hole at the mast head. The halyards are a luff purchase, the double block hooked to the tye, and the single one to a strop around the lower trussel-trees, the fall leading on deck.

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185. *Main Top Gallant Halyards*

Lead the same as the fore ones.

186. *Mizen Top Gallant Halyards*

Have no purchase, but are long, and lead single on deck.

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187. *Fore, Main, and Mizen Royal Halyards*

Are all single, and lead similar to the mizen top gallant halyards.

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188. *Main Topmast Stay sail Halyards.*

The standing part is hitched to the collar of the main topmast spring stay, reeving through a block in the head of the sail, up through a leading block at the main topmast head and down on deck.

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189. *Mizen Stay Sail Halyards*

Are hitched to the collar of the stay sail stay, reeving through a block in the head of the sail, then through a leader, and lead down on deck.

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190. *Gaff Throat Halyards*

Are a luff purchase. The single block hooks to an

eye bolt in the jaws of the gaff, and the double one to another in the mizen trussletrees.

191. *Peak Halyards.*

The standing part goes on the gaff end, leads through a double block at the cap, and out through a single block on the gaff, up again through the double block at the cap, and down on deck.

192. *Lower Studding Sail Halyards.*

The outer ones are taken through the lubber's hole, rove through a block in the end of a mast head pendant, out through a block at the end of the studding sail boom, and bent to the yard; the inner halyards lead through two single blocks on the fore yard, the one without the other, and is bent to the inner head cringle.

193. *Top Mast Studding Sail Halyards*

Are rove through span blocks, at the top mast head, then through the jewel blocks, at the yard arm, and bent to the yard.

194. *Fore Top Mast Stay Sail Downhaul*

Is hitched to the head of the sail, rove through the hanks, then through a block seized to the tack of the sail, and leads in on deck, through the fair leader, to the fore castle.

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195. *Jib Downhaul*

Is hitched to the head of the sail, then rove through the hanks, the same as the stay sail downhaul, then rove through a block seized to the traveller and lead in on deck, through the fair leader, to the starboard side of the fore castle.

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196. *Flying Jib Downhaul*

Is hitched to the head of the sail, rove through the hanks, then through a block at the end of the boom, and in on deck the same as the others.

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197. *Top Sail Downhauls*

Are either luff or gun tackle purchases, hooked to strops around the slings of the yard, and another through the pigeon hole of the top.

198. *Main Topmast Stay Sail Downhaul*

Is clinched to the head of the sail, then rove through the hanks, through a block at the tack of the sail, and down by the foremast.

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199. *Mizen Stay Sail Downhaul*

Is clinched to the head of the sail, rove through the hanks, down the mizen stay.

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200. *Topmast Studding Sail Downhaul*

Bends to the yard arm, reeves through a bull's eye in the leach of the sail, then through a single block at the tack, and in on deck.

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201. *Top Gallant Studding Sail Downhaul*

Bends to the yard arm and leads to the top.

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202. *Royal Studding Sail Downhaul*

Is bent to the yard, and leads in the same manner as the top gallant studding sail downhaul.

203. *Main Tack*

Is hooked to an eye bolt in the gangway, then rove through a block in the clew of the sail, then leads through a block in the gangway and belayed to a cavel.

The fore tack is hooked to the fore bumpkin, then rove through a block in the clew of the sail, out through another block at the bumpkin end, and in on the fore castle.

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204. *The Jib and Fore Topmast Stay Sail Tacks*

Are simple lashings.

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205. *The Spanker Tack*

Is a small gun tackle purchase.

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206. *Topmast, Top Gallant, and Royal Studding Sail Tacks.*

The topmast studding sail tack is bent to the tack of the sail, rove through a block on the end of the boom. The fore, leading aft to a block, in the forward part of the main rigging.

The main leads through a sheave hole in the bulwark abaft.

The top gallant and royal studding sail tacks, are bent in the same manner and lead in their respective tops.

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207. *Main Topmast Stay Sail Tack*

Reeves through a block, in the weather fore rigging.

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208. *Lower Studding Sail Outhaul*

Is bent to the tack of the sail, rove through a block at the boom end, and leads in through a leading block in the gangway.

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209. *Spanker Outhaul.*

The end is clinched around the boom end, rove through a block in the clew of the sail, then out through a sheave hole in the boom end, and belayed to a cleat lashed to the boom.

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210. *Fore and Main Sheets*

Are hooked with sister hooks to bolts in the ship's

side, then rove through the block in the clew of the sail, and lead in through a sheave hole in the side.

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211. *Top Sail Sheets*

Are clinched around the lower yard arms, then rove through the blocks in the clew of the sail, through the sheave holes in the yard arms, in again through the quarter blocks, and lead down on deck to the topsail sheet bitts, where they are belayed.

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212. *Top Gallant and Royal Sheets*

Are clinched to the clews of the sail, rove through the sheave hole in the yard arms, in through the quarter blocks, and lead on deck.

NOTE. The royal sheet leads only as far as the top.

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213. *Fore Topmast Stay Sail and Jib Sheets.*

Pendants lashed to the clew of the sails, with a block in the end, through which the sheets are rove, the standing part is hooked to an eyebolt in the bows, and the running part is led in on the fore castle.

214. *Flying Jib Sheets*

Are lashed to the clew of the sail, rove through a block on the spritsail yard, and lead in on the fore castle.

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215. *Mizen Stay Sail Sheet*

Is a runner, leading through a snatch block and thimble.

The main topmast stay sail sheet makes fast to the clew of the sail, and leads down in the gangway.

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216. *Spanker Sheets*

Are luff purchases, reeving through a double block on the boom and a single one bolted to the taffrail.

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217. *Lower Studding Sail Sheets.*

The short sheet reeves through a block, hooked in the side or in the channels; the long one leads in on the fore castle.

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218. *Topmast Studding Sail Sheets.*

The short one leads through a thimble on the

lower yard, into the top, the long one leads down on the fore castle.

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219. *The Top-gallant and Royal Studding Sail Sheets*

All lead in the top.

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220. *Clue Garnets.*

The fore and main clue garnets are hitched to the yards, then rove through a block lashed in the clews of the sail, up through a block on the quarter of the yard, down to the fife rail.

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221. *Topsail and Top-gallant Clewlines*

Are rove the same as clew garnets.

NOTE. Some ships have them to go with whips and pendants.

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222. *Royal Clewlines*

Are hitched to the clews of the sails rove through the quarter blocks on the yard, and lead either in the tops, or on deck.

223. *Lower Studding Sail Clewlines*

Are hitched to the outer clew of the sail, rove through a block at the inner yard arm, then through a block on the fore yard, and are led down on deck.

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224. *Fore and Main Buntlines*

Are double. The upper legs reeve through the upper sheave in the shoe block, then through a double block under the tops, and both parts are toggled or clenched to the foot of the courses, forward of the sail.

The lower legs are rove through the lower sheave of the shoe block, and forms a whip; the standing part seizing to the main stays by the fore mast, and the other part is manned in hauling up the sail.

NOTE. The fore buntlines lead down by the after fore swifter, and belay to the side, or fife rail.

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225. *Top Sail Buntlines*

Are clinched in the foot of the sail, then reeve through a thimble, lashed to the yard, up through leading blocks under the fore part of the topmast crosstrees, and down on deck.

226. *Top-gallant Buntlines*

Are hitched to a span in the foot of the sail ; leads through a block at the top-gallant mast head, and down on deck.

NOTE, Slablines are hitched to the middle of a span at the foot of the sail, leads up abaft, and reeves through a block lashed to a grummet, around the strops of the quarter blocks of the lower yards, and down on deck.

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227. *Leach Lines*

The forward leach lines are rove through the upper sheave hole of a shoe block, both parts are then rove through a double block, hooked with a pendant to the lower cap, then through two single blocks, seized to the jack stays on the yards, and are clinched to the leaches of the courses before the sail.

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228. *The Lower Legs*

Are rove through the other sheave hole, in the shoe block, the standing part is made fast to the fife rail, the other end being used to haul up the sails.

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229. *After Leach Lines.*

Are rove through blocks on the underneath part

of the yard, and clinched to the courses abaft the sail, to the same places, as the forward ones.

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230. *Spanker Brails.*

The middle brail, and peak brail, are seized to the after leach of the sail, leading up through cheeks bolted on each side of the gaff, through leading blocks, bolted on each side of the jaws of the gaff, and down on deck.

The foot brails are rove through a block lashed to a hoop one third or thereabouts up the trysail mast.

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231. *Try Sail Brails*

Are rove like the spanker brails. The mizen stay-sail brails are clinched in the after clew of the sail, led up through a block seized to the upper part of the luff of the sail and lead on deck.

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232. *Main Topmast Stay Sail Brails*

Are seized to the leach of the sail, lead up through the hanks to a block seized to the upper hank, and act as a downhaul also.

233. *Jib Brails*

Are seized to the clew of the sail, and lead through a block seized to a hank, down through another at the end of the jib boom, and in on the fore castle.

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234. *Jib and Flying Jib Guys*

Are fitted over their respective boom ends, and lead in through thimbles stopped on the spritsail yard, having dead eyes, spliced, or turned in their ends, setting up to others at the bows.

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235. *Lower Boom Guys*

The standing part of the forward guy is made fast to the spritsail yard, then rove through a block on a boom, back again through a block on the bowsprit cap, and lead in on the fore castle.

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236. *The After Guys*

Are hooked to an eyebolt in the side abaft the fore channels, then rove through a block on the boom and leads in through a sheave hole in the side above where the standing part is hooked.

237. *The Spanker Boom Guys*

Have a pendant which is fitted to go over the boom end, and sets up on the quarter with a gun tackle purchase.

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238. *Storm Stay Sail Gear.*

The storm stay sail stays are lashed around their respective mast heads, or toggled in the crutch of the lower stays, and set up near the proper stays, the halyards and downhauls being rove in the same manner as the other stay sails, using luff purchases for the sheets.

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239. *The Middle, Lower, and Upper Top-gallant Stay Sails, and Jack Stays,*

May be fitted in one. In this case a double block is turned in, and lashed to the after part of the fore topmast crosstrees, or mast head, the lower part is set up in the fore top, the upper part, at the fore top-gallant mast head.

The middle stay sail stays, are rove through a single block, stropped to the topmast, down on the cap.

The lower and upper top-gallant stay sail stays, are rove through blocks, fitted to traverse the jack stay, with lock thimbles, the former being rove

through the other sheave of the double block at the topmast crosstrees, the latter through a block at the fore top-gallant mast head, and both are led on deck.

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240. *The Downhaul Blocks*

Are single and are seized to the strops of the tricing line blocks. The halyards are whips, hitched to the collars of the stays, rove through blocks in the head of the sail, through leading blocks at the mast head, down on the quarter deck.

The downhauls are hitched to the head of the sail, rove through the hanks, and through the downhaul blocks, and lead in on deck. The tacks are single, and lead in the fore top, the sheets are also single leading in the gangways.

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241. *To Stow the Hold and Spirit Room. Ballast.*

See that the limbers are clear from chips or dirt, and place the limber boards. Clean, sweep, and whitewash the hold, place hoop poles athwart ships for dunnage, as near to each other as possible, so that each pig of iron will rest at least on two of them. Have the rust well beaten off the ballast, and whitewash each pig. Each pig should be weighed, after which strike it, stow it according to the mould of the

vessel and to her best sailing trim, always observing to have the same number of pigs on each side of the kelson.

The ballast in the spirit room should be a continuation of that in the hold. Make a draft of the ballast, indicating the exact number of pigs, the exact position which they occupy, and their exact weight.

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242. *To Stow the Casks.*

Strike down their beds, place and whitewash them; then strike below the water casks, commencing at the after bulkhead in the hold; the kelson tier—observing to have the largest cask in that tier, and the guages of the casks on each side of the kelson, to correspond. Be careful that the bung holes are all up, and the bilge free, and head clear.

After completing the first tier, go on with the second, placing hanging beds between the casks, and stowing barked wood in all the breakages. As the tiers approach the wings, let the size of the cask diminish. When the ground tier is all finished, fill and bung the casks. Stow the riding tiers in the cuntlines of the ground tiers, fill and bung them up; the stowage being commenced abaft, all breakage will be forward.

243. *Stowage of Naval Stores.*

Stow the beef on the larboard side, and the pork on the starboard side, with the flour, rice and beans in the wings, chocking all off, fore and aft with wood. The casks in the spirit rooms are stowed in the same manner, with the exception that the stowage is commenced forward, instead of abaft. Whiskey, molasses and vinegar are always stowed in casks. The liquors of the medical department, and pursers stores are generally stowed in the spirit room.

Make a draft of the ground tier, and riding tiers, and spirit rooms.

NOTE. The guages of all casks upon the draft, the number of barrels, boxes, &c., with the kind of provisions which they contain.

The shot and wads may now be got on board and stowed in their respective lockers.

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244. *To Get on Board the Cables.*

The cables are taken from the rope walks, and coiled upon a car, having a large hole in its bottom, after being transported to the wharf where the lighters are, the upper end of the coil is taken down through all the flakes, and through the hole in the

bottom of the car, then coiled away again in the lighter. By dipping the end in this manner grinds or kinks are prevented, and the cable is got into the lighter, with only one turn in it.

Hemp cables are a hundred and twenty fathoms in length, a seventy four gun ship, or a frigate generally has five, a sloop of war three.

The lighter being towed off to the ship, haul under the bows, place masts in the sides and sills of one of the forward ports, get the cables in on deck, and French flake them fore and aft; they are now with the same number of turns in them as when they left the rope walks.

See that the orlops are clear, and that the skids are properly placed for the cable to lay on. Pass the end of the spare one below and coil away with the sun, on the starboard side of the main orlop, abaft, make the coil as large as possible, taking care not to have too many flakes, in a sheave, as the inside strands of the inner ones would be injured.

Pass the ends of the two sheets below the starboard one on the larboard side and the larboard on the starboard side, and clinch them around the main mast, or to the orlop beams, coil them away with the sun, letting the ends remain out. These ends are pointed and tailed, as also, the ends of those which remain on deck. Join the pointed ends with a short splice, worming the tails along the cable. Having seizings

put on at proper distances, these form two long cables; and the whole five cables form three tiers. The upper ends of the two last cables, are crowned in the following manner, viz., clap a seizing round the cable, about two fathoms from the end, and unlay it to the seizing. With the three inner strands form an artificial eye, cut off the three next ones, and woold their ends; with the three outer ones, form a crown, worm the ends along the cable, and clap on seizings.

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245. *Chain Cables.*

Are got in through the hause holes, and paid down, into their respective lockers, into the main hatch way. They are ninety fathoms long, and shackled to the kelson with a Jewsharp, or lashed.

The stream cables and messengers are coiled away in the tier of the spare cable. The hawsers if possible, should be stowed, so that the end of every one could be passed up together, or at the same time.

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246. *To Get the Anchors on Board.*

Rig the fish davits, reeve and overhaul the cat and fish falls, get the anchors into a lighter and tow

them under the bows, pass up the end of the stream cable and clinch to the ring of the bower anchor, hook the cat and run the anchor up to the cat head. Pass the stopper, hook the fish, and pass the shank painter, unbend the stream cable and bend it to the waist anchor, then drop the lighter aft, and secure her under the berth of the anchor. Brace the fore yard in, and the main yard up, as much as possible, and top them up a little, hook a stout tackle to act as a rolling tackle, bouse the lifts and trusses well taut. Pass a lashing around the slings of the yard, to ease the trusses. Hook both top burtons to the yard arm, and set well up the opposite breast back stays. Pass a strop around the topmast, just above the lower cap. Hook the double block of a stout pendant tackle in this strop, and the single one is hooked just without the place where the bull's eye for the pendant is to be lashed; haul well taut the lifts, burtons and pendant tackles alike, reeve whips and get up the triantic stays. The bull's eyes for the pendants are lashed far enough out upon the yards, to allow the anchor to clear the ship's side.

Reeve the pendant up through it, and clinch the end to the lower mast head, have a thimble in the lower end to which the purchases are hooked.

Have a thwartship tackle in readiness, to bouse the anchor to the gunwale; lash the lower block of

the main purchases, to the crown of the anchor having guys from each fluke to keep it steady. The fore purchase block is lashed to the ring.

Rack the topsail tye aloft, and hook the lower block of the fore topsail halyards to a stout strop, passed around the shank of the anchor (amidships) then lashed above the middle of the upper arm of the stock, haul taut handsomely. "Sway away;" when high enough, haul over on the stay and athwartship tackles, get the bill of the anchor upon the gunwale, pass tripp stopper place shoes and secure the anchor, with stock and shank lashings; unbend the stream cable, and unlash purchases.

Drop the lighter around on the other side of the ship. Shift over your purchases, secure your yards, and get up the other bower and waist anchors in the same manner. When done, pass the stream cable below.

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247. *To Bend the Cables.*

Reeve a ring rope through the ring of the anchor, leading it in through the hawse holes, and bend it to the cable with a timber hitch, three or four fathoms from the end, having it stopped along to the end. Haul out on the ring rope, and when you have enough of the end through the ring, cut the stops, unbend the ring rope, and form an inside clinch,

having it smaller than the ring of the anchor. The bends are put on opposite to each other, and a small bend is put on near the end to secure it.

Render the cables as far as possible through the clinch, and stop them together to prevent chafes, &c.

The chain cables are shackled to the rings of the anchors, then bend the buoy ropes.

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248. *To Range and Stopper the Cables.*

Before ranging the cables, they should be bitted, which is done as follows; when the cables are bent, haul up sufficient slack to form a bight abaft the bitts, throw the bight which is thus formed, over the head of the bitts, and in case you wish to weather bitt it, take another turn around the cavil. In ranging, get a tail block over the hatchway, and reeve a rope through it, which overhaul down and hitch to the cable. Take the running part close out to the guns, bouse upon the rope and French flake the cable fore and aft the decks. Clap on deck and bitt stoppers, before and abaft the bitts, put on rounding at the range, which is intended to veer, and also have cable mats in readiness, to be used as may be required.

249. *Stoppers and Nippers.*

The cat head stopper has a knot worked in the end, is then rove through the hole in the cat head through the ring in the anchor, and taken over the cleat, on the side of the cat head, in board and belayed.

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250. *The Tripp Stoppers.*

Both ends are made fast to eye bolts under the after part of the fore channels. The score in the end of the waist anchor stock rest in the bight, its use is to tripp the anchor when let go, clear of the ship's side.

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251. *Deck Stoppers*

Are hooked to bolts in the deck. They have a knot worked in the end with a lanyard fast to it. The lanyard is passed around both stopper and cable, abaft the knot, and then wormed along the cable, forward of it.

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252. *Ring Stoppers*

Are ropes middled, the bights being taken through

the deck bolts, the ends rove through and dogged along the cable.

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253. *Bitt Stoppers*

Are tailed and rove through the Sampson knee forward of the bitts, taken over the cable abaft the bitts, under again, and wormed along the cable forward.

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254. *Dog Stoppers*

Are very long, and are used in the tiers. One end is clinched around the main mast, and the other wormed along the cable.

The wing stoppers are similar, but are clinched around the orlop deck beams in the wings.

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255. *The Combing Stoppers, or Compressers.*

For hemp cables they are very long, and are tailed. Two holes are bored through the deck, abaft the after beam of the hatch; one end of the stopper is rove through one of the holes, downwards, passed under the cable and rove up again through the other hole, both ends are then dogged around the cable taut, so as to nip it against the beam.

For chain cables, the combing stopper is an iron elbow, one end of which is bolted to the forward beam of the hatch underneath, the elbow goes around the cable, having an eye in the other end to which a luff tackle is hooked, which being hauled upon, stoppers the cable effectually.

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256. *Nippers*

Should be five fathoms long and made of the best of rope yarns.

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257. *To Pass a Nipper.*

Lay the messenger on the cable, and begin two or three fathoms abaft the hawse hole, to pass the nippers, which is done as follows. Two round turns are first taken with the end of the nipper, around the messenger and held by a boy; then round both; the other end is wormed around the cable, as the first was around the messenger. When the strain becomes heavy, racking, and even round turns may be used, having also small heavers, and selvages to secure the ends, taking care to have dry ones ready to use when the cable is up and down.

258. *To Splice an Old Cable to a New One.*

Take the old one to the rope walk; unlay the ends and splice them to the ends of the new one with a long splice, after which lay up the latter.

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259. *To Cut and Pass a Messenger.*

The length should be equal to twice the distance from the after part of the capstern to the roller in the manger, added to four times the circumference of the capstern band; this is sufficient for splicing in the eyes and taking the turns. The messenger is passed with three round turns, and then the eyes are lashed with the lanyard figure of 8 fashion, the part which is brought to the cable is undermost.

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260. *To Dip a Messenger.*

Cast off the lashing, slack up the turns and pass the eye up or down, as necessary. Between the turns and capstern, render the turns through each other and pass the lashing again.

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261. *To Get the Guns on Board.*

Have the gun carriages and all the equipments

belonging to them brought alongside in lighters; hoist them in with the yard and stay, and get them on their respective decks, brace up the main yard, over the port through which the guns are to be taken in, and secure as for getting up the waist anchor, with the addition of using another pendant tackle, the double block of which is used to hook to a strop passed around the lower cap, and the single one to a strop just within the place where the bull's eye for the pendant is to be lashed on. Lash on the bull's eye, between the single block of the pendant tackle, and reeve a pendant tackle like the one which was used for the waist anchor. A hole is bored through the spar deck if a frigate, but if a line of battle ship through the spar and main deck abreast the gangway port, and the gurnet rove down through. A hook and thimble is spliced in the lower end of the gurnet, and a thimble in the upper end, which is hooked to the main pendant tackle. Make the slings of breeching stuff, and seize an eye on the bight, large enough to go over the breech of the gun, put over the eye, and put the slings along the upper part of the gun, lashing them with a piece of rope around all just forward of the trunnion; bend a hawser also to weigh the gun, in the event of parting the purchase, and lash the purchase block to the bight of the slings; "Sway away," and drop the lighter from under the gun, and when the breech is as high as the port, hook the

gurnet and athwartship tackle to the breeching ring rouse in, run a carriage under, lower away, place the trunnions fair, clamp them, come up the purchases and transport the gun to its port; get all lower and main deck guns in the same way. The carronades are taken in over the rail, a toggle is put in the muzzle, one bight of the slings over the cascabel, the other over the muzzle, and back lashed to the toggle, the stay or purchase block is lashed on midships of the slings, and the stay or pendant tackle to the same place, consequently the gun will come in square, have the slide and bed ready, place it fair and drive in the naval bolt. Ship the screws, beds and coins, reeve the breeching, hook side and train tackles, see the guns square in the ports, and secure them there.

NOTE. The reason for having an additional security on the main yard is, because in getting in guns the strain is altogether on the yard, while in getting up the anchors, which are of the same weight as a gun nearly, the strain is divided between two yards. The main deck guns might be taken in over the rail and struck down the main hatch.

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262. *To Ship and Unship a Rudder.*

Have the rudder brought under the stern in a scow. Bore a hole through a beam or carline over

the rudder case. Drive an eye bolt up through it, and fit a washer and forelock. Strop a large single block with hook and thimble, and hook it to the eye bolt, reeve a top pendant through the single block, down through the rudder case, and hitch it to an eye bolt, which is temporarily fitted into the rudder head. Clap a deck tackle on to the other end of the pendant, have heel ropes leading forward on each side, being rove through their respective holes in the rudder; man the deck tackle fall and hoist away. When the rudder is high enough, guy it fair, see the pintles fair for entering the gudgeons, and lower, fit in the wood lock. Come up the pendant, unreeve the heel ropes, take the bolt from the rudder head, the one from the beam or carline above, ship the tiller, and reeve the wheel ropes.

To unship it. Fit the bolts, single block, pendant and deck tackles as before, unreeve the wheel ropes, unship the tiller, knock out the wood lock and sway away, when the pintles are clear of the gudgeons, lower away, secure it to the scow or lighter, tow it on shore, parbuckle or hoist it out of the water.

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263. *To Bend Sails and Stay Sails.*

Call all hands to bend sails, get the courses, jib,

topsail, and spanker on deck. Open them out, and see that they are whole, that the bowline bridles, head and reef earings, rope bands, reef points, sheet clewline, and reef tackle blocks, are in their proper places; bight the topsails down in slings abaft their respective masts, with the clews out and that yard arm uppermost, opposite the side on which they are to be sent aloft, round up the flyblock of the topsail halyards, high enough for the lower block to take the topsail clear of the top rail, and rack the tye securely to a back stay. Hook the lower block of the topsail halyard to the slings, also a snatch block, which mouse. Reeve the halyard through the snatch block, then through another farther aft, and it will serve as a jack stay to keep the sail clear of the top as it goes up. Sway aloft the topsail and get it into the forward part of the top. Overhaul down the halyards, hook and haul them taut, reeve and bend the sheets, clewlines, buntlines, reef tackles and bowlines. Stop the head of the sail to the buntlines, hook the double block of a luff to a strop on the yard arm, the single one to the first reef cringle, stopping the head earings, to the standing part. Overhaul the course, athwart the deck, seize on the sheet, tack and clue garnet blocks, reeve and bend the geer. Stop the head of the sail to the buntlines, use the top burtons for yard ropes, hooking through the first reef cringle, stopping the head earings to the standing parts. Turn

the block out of the end of the jib stay, and bend on a line, bring the end in on the forecastle, stop the luff of the jib, seize on the halyard block, reeve the halyards and downhauls, fit the brail block, reeve the brails, seize on the sheet pendants, and reeve the sheets, lower the spanker gaff, pass the throat and peak earings, and lace the head to the gaff. Seize on the brails, reeve them and the outhauler. To man the gear. Man the jib halyards and downhaul, yard ropes, clew garnets, clewlines, buntlines, reef tackles and gaff halyards, run out the jib, reeve and set up the stay and seize the tack, sway the topsails and courses, up to the yards, where some hands are ready to receive them, bend the gear and haul out, then take a turn with the earings, ride down the heads, then pass the earings exactly, make fast the rope bands, fit the leachline block of the courses, seize on and reeve the leechline. Some hands are employed in seizing on the hoops to the luff of the spanker as it goes aloft. Let all the sails fall, to see if the gear is bent clear, clew up and furl the courses and topsails, stow jib and spanker.

The top gallant sails, royals and studding sails, are bent on deck. Send the stay sails into the tops, fit the jack stays and tricing line blocks, to the latter, seize the head of the luff, reeve the halyards, downhauls and brails, bend the tacks and sheets, stow the stay sails, and haul all taut.

264. *To Bend Flying Jib and Fore Top Mast Stay Sail.*

These sails are bent like the jib, excepting that the fore topmast spring stay, is not come up.

NOTE. In running out the jib, it is necessary to pass a strop around the body of the sail, and to this hook the halyards and dowhaul now by hoisting on halyards, and running out on the downhaul, and a rope which is bent to the end of the stay the sail goes out fair.

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265. *To Carry Out an Anchor with a Boat.*

Hang the anchor to the stern of the boat, by good stoppers, having a buoy rope and buoy to it, pass the end of the cable or hawser out through the hawse hole, and coil enough of it away in the bows of the boat to reach the bottom. Now capsize the coil, bight by bight in the stern sheets, and then the end will be uppermost, bend the cable or hawser in board, when in the right place, heave over the buoy and see that the buoy rope is clear, stand clear of the cable and slip the stoppers.

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266. *To Haul Off and Moor Ship.*

Before hauling off, hoist in and stow the spare

spars, securing them by gripes, place the boat's chocks, get on board all stores, and the complement of men from the receiving ship, get up kedges and hawsers, ready for instant service, see the boats provided with crews, oars, and sails. Run out a kedge, and drop it where the first or weather anchor is to be planted. Have guys from the ship to the shore, single the fasts, hang over fenders and out riggers, man the hawser, cast off the fasts and warp off, checking her as necessary by the guys, run the kedge up to the bows and let go the weather anchor, veer too as fast as she will take it, assisting her in going astern by the mizen topsail if necessary. If to shoot her to either side, use the helm, jib or spanker, and in case there is no wind, use kedges and hawsers, when a double scope is out, stopper the cable, and let go the second anchor, furl the mizen topsail, bring too on the weather cable and heave in to the moorings, moor a little taut to allow for veering, clap on service, and veer it to the hawse hole if a hemp cable.

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267. *Getting in the Spare Spars.*

In hoisting in the spare spars, use the yard and stay tackles, across each other, the main being hooked forward, and the fore abaft. This is done, because the spars are too long to come directly in between the fore and main rigging; by bousing upon one of

the stay tackles, the spar is brought far enough forward or aft to allow the other end to come up and in, when the operation is reversed. In stowing the spare topmast, lay the heads of the main and mizen abaft, and the head of the fore, forward, and they will be ready for pointing.

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268. *Station the Crew.*

In dividing the crew into watches, care should be taken that the physical force is as equally distributed as possible, and there be as many seamen, ordinary seamen, landsmen, boys, and marines, in one watch, as in the other.

Petty officers should be chosen from among the seamen, selected from those who have been long in the service, and who have proved faithful. Fore castle men should be middle aged seamen, with a few ordinary seamen and landsmen. Topmen, young active seamen, a few ordinary seamen, landsmen and boys. After guard, a few elderly seamen, with ordinary seamen and landsmen. Waisters, chiefly landsmen, with a few ordinary seamen; in single decked ships, where there are no waisters, more men should be stationed on the fore castle and in the after guard, than there would be in proportion on board of a line of battle ship, or frigate; idlers are excused from watch. They are officer's servants, cooks, &c.

Divide each watch into first and second parts, appoint a captain to each part, number the men belonging to the fore castle, having all the larboard watch even, as two, four, six, and the starboard, odd, as one, three, five; have the numbers painted on canvass, and let each man sew it on his bag and hammocks, having also for greater distinction, the larboard painted red, and the starboard black. The men should be below alternately, so that when one watch is below there should be an equal number on each side.

In each watch, line of battle ship, frigate, and sloop of war

	Line of Battle Ship.	Frigate.	Sloop of War.
Fore castle.	Generally about 40 men.	About 30 men.	About 14 men.
Fore & Main top.	" " 40 "	" 30 "	" 14 "
Mizen top.	" " 30 "	" 20 "	" 12 "

269. *Station the Crew at Quarters.*

Choose for the captains of your guns, seamen who have been long accustomed to them, steady, with good sight, and quick motion. The boarders should be stout men. The firemen and sail trimmers, young and active men. The largest and stoutest men should be chosen to man the long guns, the others the carronnades. Be particular to station them as near where

they are accustomed to do their duty as possible, in order to prevent confusion. Let all the first part of the gun's crew be in one watch, and the second part in the other, so that in the event of going to quarters in the night, the watch on deck can clear away the guns, while the watch below clear away the hammocks.

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270. *To a Twelve pound Carronnade*

Are stationed four men and one boy. All the men stationed at the long guns of a double decked ship, should be armed with cutlasses, and called boarders, the first of the gun's crew to be called second boarders, and "vice versa." They are only to be called when required to board, or in case of great emergency, to repel boarders, and then every man will repair to the upper deck, except the firemen, quarter gunners, and powder boys, who will remain below to protect the ports, or to assist in extinguishing a fire.

All the men stationed at the carronnades should be boarders and sail trimmers. As boarders, the first part should be armed with pikes, the second part with small arms, and are to repel the boarders, but not to quit the ship.

All the men stationed of a single decked ship, are boarders; the first part to be armed with cutlasses,

the second part with pikes. The battery being manned, distribute the rest of the crew as follows: have a quarter master at the signals when in a squadron, topmen and marines in the tops, to repair damages, and act as small arm men. A quarter master and two men at the relieving tackles, men stationed at the passages, to pass full and empty boxes; also others at the shot lockers. Mastmen to see the rigging clear, cook and armourer at the galley, the carpenter and his mates at the pumps and wings, the master at arms and ship's corporal in the light room, the gunner, his mates, quarter gunners, and cooper, in the magazine, the surgeon and assistants in the cock pit.

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271. *Station the Crew for Mooring and Unmooring.*

In stationing the men, place the same number of men of each watch to perform a piece of duty. Have quarter masters at the signals, when in a squadron, in the chains, at the lookout; men at the wheel, quarter gunners to overhaul the fish and grapple the buoys, men to overhaul and hook the cat, attend back ropes; also others at the mast to see the rigging clear. Boatswain's mates in the gangways, carpenters to ship and unship capstan bars, attend stanchions, with the music at the capstan—some fore top-

men to put on nippers, some main topmen to take them off, and boys to carry them forward. Men to rouse up and veer away cable, to attend stoppers and light forward the messenger. The yeoman in the store rooms, master at arms and ship's corporal on the berth deck, and cook at the galley. Tierers in each tier, and the remainder of the men at the capstan.

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272. *Station the Men—Loosing and Furling.*

Take the same number of men from each watch, and station them at the same rope, &c. The topmen are to man their respective yards, hands are to attend the boom jiggers and tricing lines, fore castle men to attend head sails and foresail, main yard men to look out for the main sail, after guard for the spanker and mizen stay sail, for the main topmast stay sail, the fore castle men; for the main stay sail, the gunner's crew, men stationed to sheet home and hoist the top-sails, and when coming to anchor the same men to man the clewlines, buntlines, and weather braces; and when loosing sails to dry, to man bowlines or buntlines, in furling, the captains are to be in the bunt.

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273. *Station the Crew for Tacking and Veering.*

Station the men from the watch bill, have hands

at the jib boom end, to overhaul jib brails and light over jib sheets. On the bowsprit end to light over jib pendants, hands on the bumpkins and in the chains, to overhaul tacks and sheets, and back stay falls. On deck, at the wheel, sprit sail braces, jib sheets, jib brails, braces, bowlines, clew garnets, tacks and sheets, back stay falls, lifts, trusses, spanker sheets, guys, vang and topping lifts. Aloft to overhaul lifts and trusses, attend outriggers, and bear the backstays abaft and abreast, the mast men to see the rigging clear, &c.

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274. *Station the Crew for Reefing.*

The men are stationed as in furling, except the captains, who are at the earings; when the yards are down, the men from the clewlines and buntlines, will haul out the reef tackles.

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275. *To Mark the Lead Line.*

At two fathoms, two strips of leather, at three fathoms three strips of leather, at five fathoms a white rag, at seven fathoms a red rag, at ten fathoms, a piece of leather with a hole in it, at thirteen the same as three, at fifteen the same as five, at seven-

teen the same as seven, at twenty fathoms, two knots and then one knot for every ten fathoms.

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276. *To make the Log Line.*

Allow twelve fathoms for stray line, where stick in a white rag, then at every 47 feet and 6 tenths, mark the line as follows, viz., at 1, one leather, at 2, two knots, at 3, three knots, having a mark also at every half knot. The glasses should be proved with a good watch, having a second hand. The principle of the log line is, that the knot is the same part of a sea mile, that half a minute is of an hour, therefore the length of a knot should be one one hundred and twentieth the length of a sea mile, or fifty one feet, but as it is more convenient to have the knot divided into eight parts, of six feet each, the proportional reduction is necessary in the glass. Therefore as fifty one feet: 30 seconds : : 48 feet : 28 4-17 seconds, but as the fraction can more easily be allowed in the line than the glass, another proportion is necessary, viz., as, 28 4-17 seconds : 48 feet : : 28 seconds to 47.6 feet, or the length of a knot.

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277. *To Clear Hawse.*

Call all hands, "clear hawse," have the starboard

watch on deck, and the larboard watch below in a double decked ship. Lash a stout single block to the bowsprit, and reeve the clear hawse pendant through it, haul the launch under the bows, or if there is too much sea on, or she is not out, send a hand down in a bowline, and hook the pendant to the riding cable, below the turn, and bouse them up clear of the water, after which pass a stout lashing around both cables. If there should be much sea on, or the wind flawey and variable, it would be well to pass the end of a hawser out of the hawse-hole and hitch it to the cable; to relieve the lashing, reeve ropes through blocks on each side of the bowsprit end, for bowlines, and pass them in at the hawse hole, so as to take out an elbow. For example. Suppose the starboard was the clearing cable, and it was under the other, take the larboard bowline down under the cable, up into the starboard hawse hole, and the starboard one over to the larboard side of the cable, then follow the lead of the larboard bowline, bend on several fathoms inside and stop along to the hawse hole, draw the splice, bend on hawse rope, off stoppers, and run out, hang the bights to the bowsprit, with slip ropes, and send in the bowlines again, the same way as before, when the end is out "cast off" and dip it fair and bend on again to the end of the cable, rouse in, slack down the slip ropes, and splice the cable, haul it taut with

a deck tackle, bitt and stopper, cast off the hawser unlash the cable, unreeve the clear hawse pendant, unlash the block from the bowsprit end, clear up the deck, and pipe down.

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278. Note.

If there is a round turn and an elbow in the hawse after rousing the cable, repeat the operation as before, it is always well to prevent confusion, to take out one elbow at a time. A cross is when the cables lay across each other, or when the ship has swung foul once; an elbow is two crosses, and a round turn is three crosses; a round turn and elbow is five crosses, it can readily be seen thus, in clearing hawse with a round turn, a cross will be left in the cables.

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279. *To Weigh an Anchor With the Launch.*

This may be done by underrunning, when the ship has slipped, or weighing by the buoy rope, when the anchor lies in too shoal water for the ship to be hove up to it.

Ship the roller on the stern of the launch, take strong tackles with a jigger also, and some good rope

or stoppers, get the end of the cable over the roller, hook the double block of the tackle to a strop passed around it, the single one to a bolt in the bows, and man the fall, and as the cable comes in, French flake it along the athwarts, when the tackle comes two blocks, stopper and fleet, when the cable is up and down clap the jigger on the fall of the tackle, and heave the boat's stern well down in the water and stopper securely, send all the men into the bows of the boat, jump the boat and break ground, then man the fall again, off stopper and heave up, when the ring is above water, pass a short ring stopper, and haul the buoy on board, when along side, hook the cat, and cat the anchor, get the end of the cable unclinched, and passed into the hawse, and haul the remainder out of the launch.

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280. *To Weigh with a Buoy Rope.*

Get the buoy rope over the roller, clap on a tackle, and weigh the anchor as before. When it is secured, man the capstan, heave the launch in under the bows and cat the anchor.

Note. Anchors are sometimes weighed with the buoy rope, when the cable has parted and the end cannot be grappled; when this is the case, the anchor may be weighed with the launch, brought under the

bows and catted, the cable unclinched and hove in, or the ship might be warped over the buoy and the cat fall taken to the buoy rope.

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281. *To Take in a Launch.*

Brace and secure the yards, the same as for getting up the anchors, also rig the same purchases, place the chocks, pass every thing out of the launch, and hook the purchases to spans, have a couple of hands in the boat to keep her clear of the ship's side, man the yard tackle falls, and have a few hands to take in the slack of the stay falls, walk away, and when the boat leaves the water, take out the plug, when high enough to clear the waist anchor stock, haul over the main stay, easing away the fore and main yards, when the stern is over the deck, haul over the forestay, lower and place her in the chocks. The other boats may be got in by the same purchases, the launch is stowed on the larboard side, the first cutter on the starboard side, the second cutter inside the launch, the third cutter inside the first; when all are in, unrig the purchases, square the yards and set up the gripes.

The quarter and stern boats are hoisted up to the davits and secured to them, by stoppers, and the gripes are set up.

282. *To Take in Boats at Both Sides at Once.*

The yards are kept square and secured on both sides, by the lifts, burtons, and quarter lifts. Use the winding and stay tackles for the heaviest boats, the yard tackles for the lightest ones, the top sail halyards forward and the main pendant tackle aft acting as stays to bring them on board. Come up the forward back stays as they would interfere with the bows of the boats, after which proceed as before.

NOTE. To take in a boat at sea, back the main topsail, get the boat to leeward, secure the lower yards as before directed, and hoist her in. She coming in to leeward, tackles will be necessary to get her to windward sufficiently to lower away. When before the wind, a boat might be got in, by securing the yards as before, and taking a hawser from aft, to the stern of the boat, to keep her from sending forward when she leaves the water, and thereby endangering the yards.

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283. *To Unmoor Ship.*

See that the hawse is clear, and overhaul a range of the weather cable, get up nippers, pass the messenger, knock up the stancheons, ship the gratings, ship and swifter in the capstan bars, rig the fish davit, overhaul cat and fish, "Call all hands un-

moor ship," have leadsmen in the chains, men at the wheel, man the bars, bring too on the lee cable, heave taut, off stoppers, unbit and heave in, veer away on the weather cable; when the lee cable is up and down, stopper the former, heave up, pall the capstern, hook the cat and walk away. When high enough, surge the messenger, pass cat head stoppers, grapple the buoy, hook the fish, walk away; when high enough, pass shank painter, dip the messenger, bring too on the other cable, and heave in to the old service—clear up the decks.

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284. *When the Messenger Strands, or is likely to Part.*

If the messenger is likely to part from the great strain, stopper immediately, and either pass a new one, or reeve a viol, assisting it with cat fall. Lash the viol block to the cable near the hause hole, clinch one end of the hawser to the main mast, snatch the bight to the block and take the other end to the capstarn. Pass a strop around the cable close down to the water, hook the cat to it, and heave up by the viol and cat fall. If the messenger should strand, stopper immediately, cut it, then knot or splice it.

285. *Leeward Tide to Get Under Weigh and Stand Out on a Wind.*

Overhaul a range of the cable by which she is not riding, get the anchor ready for letting go, have hands attending the stoppers, pass the messenger, knock up the stancheons, ship the gratings, ship and swifter the capstan bars, rig the fish davit, reeve and overhaul the cat and fish. "Call all hands up anchor," have leadsmen in the chains and men at the wheel, man the bars, bring too, heave taut, off stoppers, unbitt and heave in, when into a small scope, pall. "Aloft sail loosers," and loose all sail, sheet home and hoist the topsails. If riding by the starboard cable and no impediment to port, it will be most eligible, to cast her on the starboard tack, as the cable will then be clear of the cutwater, and the ship being to leeward of her anchor, it can be more easily catted and fished. If there should be much sea on, this would be the best plan.

Having determined to cast on the starboard tack, overhaul lifts, trusses and backstay falls. The fore topsail being put aback by the starboard braces, the main and mizen by the wind, with the larboard after braces, heaving around briskly, and before breaking ground, give her a sheer with the starboard helm, when up, hoist the jib, keeping the helm a starboard, until the stern board exceeds the velocity

of the tide, when shift it and grapple the buoy, when she has fallen off, so as to fill the after sails, let flow the jib sheet, haul out the spanker, set top gallant sails and courses, trim the yards and sails properly. To cast off on the larboard tack put the helm a port, and brace the yards the contrary way.

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286. *To Get Under Weigh and Stand Before the Wind.*

Make all preparations for getting under weigh, heave in and make sail as before. Lay the main and mizen topsails square aback, the fore one sharp aback according to the side it is intended to cast, heave in, cant her the right way with the helm before tripping, and as soon as the velocity of the stern board is greater than that of the tide, shift the helm, grapple the buoy, run up the jib as soon as it will take, haul aft the weather jib sheet. While falling off cat and fish the anchor, as she gathers head way shift the helm, when before the wind, right it, square the head yards, and brail up the jib, set top gallant sails, royals and foresail, haul taut lifts, trusses, backstay falls, set the studding sails if necessary.

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287. *In Getting Under Weigh, Back Astern, to Avoid Danger.*

Make all preparations, heave in and make sail as

before. If required to cast on the starboard tack, sheer her with the starboard helm, to bring the wind on the starboard bow, brace the yards fore and aft, aback about half up with the larboard braces, haul out the spanker and keep the boom nearly amidships, heave up briskly, grapple the buoy, and as soon as the anchor is up, put the helm hard a weather to keep her too, cat and fish the anchor, having made sufficient stern board, shift the helm, brace about the after yards, ease off the spanker sheet and run up the jib, when full aft, brace round the head yards, and as she gathers head way, right the helm and make sail. To cast on the larboard tack, sheer her with the port helm, and brace all sharp aback and proceed as before.

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288. *Get Under Weigh, a Shoal on Each Beam.*

It becomes necessary to proceed to sea, and is impossible, to weather either of those abeam; but there is just room to pass between a shoal astern and either of those abeam (*blowing fresh.*)

Pass the stream cable out of one of the quarter ports, bend on one end to the cable and secure the other to the topsail sheet bitts, draw the splice of the cable, bend a slip buoy to it, and heave it overboard. See the stoppers clear for slipping, stop the topsails to

the yards with spun yarn, casting off the gaskets, loose the courses, jib and spanker, mast head the topsail yards, man the jib halyards, shear her from the cable, with the helm, slip and run up the jib, keep fast the stream cable, and let her swing round; when she heads for the passage, slip the stream cable, right the helm, sheet home the topsails, set the courses, and other sails if necessary, then stand through the passage.

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289. *Get Under Weigh, at Anchor, in a Narrow Channel.*

At anchor in a narrow channel and riding to a strong leeward tide and blowing fresh, a ship astern and one on each quarter, so near that there is not room to veer after casting, it is necessary to go to sea, and to do so a passage must be effected between the two ships.

Make all preparations for getting under weigh and heave in as described before, loose the topsails, if riding by the starboard cable give her a rank sheer with the starboard helm, set up the starboard backstays, bear aft the larboard ones, overhaul lifts and trusses, haul out the spanker, and get the boom over on the larboard quarter, lead along main tack and sheet, run the jib up, and haul aft the weather sheet, heave

round cheerily, run the anchor up, grapple the buoy as soon as she fills, meet her with the helm, board the main tack to catch her, trim the jib and spanker sheets, set the foresail and trim sharp, haul the bowlines, and stand on as far as necessary.

NOTE. A great deal of uncertainty attends this manner, if there is room it would be the best plan to lay the head yards aback. It is confidently asserted, by old experienced seamen, that the above method is perfectly practicable.

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290. *Head to Wind, Cast on Larboard Tack.*

Make all preparations, heave in and make sail as before, sheer her with a port helm, brace the head yards, sharp up with the larboard braces, and counter brace the after ones, haul out the spanker and get the boom on the starboard quarter, heave in, break ground, get the buoy, up jib, as soon as it will take, shift the helm, when the sternboard exceeds the velocity of the tide, when the after sails are full, trim the spanker, let flow the jib sheet, cat and fish the anchor, haul aft the jib sheet, brace round the head yards, and make sail.

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291. *Windward Tide, Get Under Weigh and Stand Before the Wind.*

Make all preparation for getting under weigh,

heave in, loose the jib, up anchor, grapple the buoy, run the jib up, cat and fish the anchor, and make sail with expedition.

NOTE. If it was necessary to have the ship under greater command, and as might be the case in a narrow channel or crowded harbour, it would be better to proceed as follows, heave in to a short stay, loose the courses, topsails, jib and spanker, if riding by the starboard cable, sheer her with the starboard helm, and bring the wind on the larboard quarter, brace the yards too, by the larboard braces, and keep them shivering by the helm, heave up, fill the after yards and square the head ones, haul aft jib sheet on starboard tack, cat and fish the anchor, up helm, fill the head yards, shiver the after ones, get her before the wind, and make sail.

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292. *To Get Under Weigh, and Stand Out on a Wind.*

Make all preparations, commence heaving in, loose jib and spanker, top up and bear over the spanker boom on the right quarter, and the helm to the side which it is intended to cast, heave up, get the buoy, haul out the spanker as soon as it will take, when the wind gets abeam, run up the jib and meet her with the helm, cat and fish the anchor loose,

sheet home, and hoist the topsails, brace up, bring by and make sail.

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293. *Riding Head to Tide, Wind on the Starboard Quarter, to Get Under Weigh on the Starboard Tack.*

Make all preparations, heave short, loose sails, sheet home and hoist the top sails, bracing them too with the starboard braces; keep them shivering by the assistance of the topsails and helm, heave around, break ground, put the helm a starboard, brace full the head yards, run up the jib, and let her pay round to port, heave up the anchor, and grapple the buoy, haul out the spanker, as soon as it will take, shift over the head sheets, and square the head yards, trim aft the jib sheet, and meet her with the helm, cat and fish the anchor and make sail.

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294. *To Get Under Weigh, Wind Across the Tide.*

To get under weigh, ebb tide, make all preparations, loose, sheet home, and hoist the topsails, brace up the fore and mizen top sails, and lay the main yard to the mast. Give her a spoke or two of lee wheel, so as to take the main topsail well aback,

heave the anchor up, cat and fish it, grapple the buoy, at the same time set the jib and spanker, fill the main yard, stand on to a convenient place, then either tack or veer. The evolution is determined by the circumstance of there being more room to windward or to leeward.

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295. *To Get Under Weigh Flood Tide.*

Proceed as before until the anchor is catted and fished, then hoist the jib, haul out the spanker, fill the main topsail, and stand out making whatever sail may be judged necessary.

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296. *To Back and Fill in a Tide Way.*

This manœuvre is only executed when a ship is to proceed up or down a rapid river against the wind, which is supposed to be light and may be done by two methods, viz., driving before the wind or broadside to it, when the channel is broad enough, the latter method is preferable, as the ship will be more under the command of her helm.

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297. *To Drive Before the Wind.*

This is only done in a very narrow channel,

heave up the anchor, and get her before the wind, with just sail enough to keep her so. Suppose her, under topsails, and as she drops with the tide it becomes necessary for her to remain stationary, to allow a ship to pass her stern, set top gallant sails, and if required to shoot ahead, drop the fore sail, if to avoid a rock or ship astern, put the helm up or down, haul out the spanker, brace up, haul aft the jib sheet, as she comes too; shoot across until clear of danger, when put the helm up, brail up the spanker and shiver the after yards, and when before the wind brail up the jib. If in standing across she should get too near the shore, get her on the other tack, by waring or box hauling.

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298. *To Drive Broadside Too.*

Get under weigh, bring her by the wind under the jib, topsails and spanker, shiver the topsails, when filled stand on to the middle of the channel, brail up the jib and spanker, let her drift in this situation until she falls off which she will soon do, owing to her greater immersion aft than forward, which will drift her stern farther to windward, haul out the spanker, and if this is insufficient, back the mizen topsail; if she still falls off, back the main also, both square aback, and if she should get a stern board, put

the helm hard a weather, should she come too again, shiver the topsails, and brail up the spanker, letting her drift as before.

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299. *To Secure the Ship for Sea.*

Take the departure, give the course, and make sail, beat to quarters, examine the magazine, load, shot, and secure the guns, see that all the gear of the guns is ready for service and secured, fill the shot boxes, rack, and wadnets, get the anchors on the bows, and lash them, unbend the cable and buoy ropes, if clear and dry, pay them below. Also, the messengers, hawsers, stoppers, nippers and cable mats, put in the bucklers, unreeve cat and fish, coil them away below. Get chafing mats on the yards, and rigging, see the booms and boats secured, pumps ready for working, the gratings and tarpaulins ready for putting on. Overhaul the storm stay sail gear, see every thing ready for service and stow it below again.

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300. *To Stow the Anchor for Sea.*

The anchors being catted and fished, clap a stout tackle on them and cat head stoppers, pass a good

lashing through the ring, and over the cathead expend the stopper the same way. Hook the pendant tackle to a strop around the shank, weigh the crown and bowse the fluke into the bill port by a thwartship tackle, having another tackle clapt on the end of the anchor stock, which is uppermost, getting it as close to the side as the stock will permit; pass stout shank lashings also around the stock and cathead, unbend the cable and buoy rope.

NOTE. The waist anchors are securely stowed, when they are first got on board.

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301. *To make Sail when Getting Underweigh.*

Call all hands, loose sails, lay aloft sail loosers, man the boom tricing lines, trice up, lay out, loose away, clear away the rigging, man the topsail sheets and halyards, keep fast the buntlines and leech lines of the courses, when ready, let fall and sheet home, lay in, lay down, down booms; when the men are off the yards, light up the rigging in the tops, attend the braces, hoist away the topsails; when taut, leech, belay the halyards, man the lee braces and attend the weather ones. Bear the lee back stays abaft, weather ones abreast, and set them up, and rig out the outrigger. Overhaul the lifts and trusses, attend

the bowlines and brace up, when up, haul taut weather braces, lifts and trusses, steady out the bowlines.

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302. *To set Top-gallant Sails, Blowing Fresh.*

Point the yards to the wind, and loose the sails, sheet home to leeward first and then to windward, having a hand to leeward, to light the foot over the topmast stay, hoist away, trim the yards, haul the bowlines.

NOTE. In setting top-gallant sails over single reefed topsails, see that the sheets are home square alike.

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303. *To set Courses, (Moderate.)*

Man the fore and main tacks and sheets, attend the rigging, have hands on the lower yards, to overhaul it, haul aboard, check the top bowlines, weather lower lifts a little of the lee main brace, avast the sheets, get the tacks close down, and then haul af. the sheets, haul taut the main brace, lifts, trusses, and bowlines.

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304. *To set Courses, (Blowing Fresh.)*

Man well the sheets, overhaul the leech lines and the lee buntlines, ease down the lee clew garnet, slack

top bowlines, lower lifts, and lee main braces, get the tacks close on board, haul aft the sheets, haul taut the lee main brace, weather lifts and bowlines, hook and haul taut your rolling tackle.

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305. *To set the Spanker.*

Top up the boom, overhaul lee topping lifts, attend the sheets and weather guy, haul over the lee guy and trim the boom, man the outhaul and attend the brails and vangs, let go the brails, haul out and trim the gaff by the vangs.

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306. *To set the Jib.*

Cant the spritsail yard to steady the boom, man the halyards and sheet, see the down haul and brails clear, take in the slack of the sheet to steady the sail, hoist away, and as the sail goes up ease off the sheet when taut up, haul aft the sheet.

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307. *By the Wind, a man falls overboard.*

Silence fore and aft, hard down the helm, cut away the life buoy, haul up the main sail, lay the main yard to the mast, let flow the head sheets, clear away

the lee quarter boat, up foresail and top-gallant sails, wait for the return of the boat, hoist her up, fill away and make sail.

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308. *To set a Lower Studding Sail.*

Get the sail athwartships the fore castle, overhaul the gear, haul taut the fore brace, topmast studding sail boom brace, burton trusses and rolling tackle. Man the lower boom topping lifts, forward guy, attend the after one, rig out and trim the lower boom, man the halyards and outhaul, hoist away, break stops or haul out the toggle, haul out the tack close, hoist the outer Halyards, taut up, then the inner ones, trim down the sheet.

NOTE. The weather studding sails are always set abaft, the lee ones forward, when required to shift them from aft forward, send a hand aloft, lower away, gather in, and get hold of the outer leach, cant the yard, clear, up topmast, or top-gallant studding sail.

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309. *To take in Top-gallant Sails*

Man top-gallant clewlines, lay aloft and stand by to furl the sail, attend the braces, bowlines, sheets, and halyards; round in the weather braces, ease

away the lee sheet and halyards, lower away, ease away the weather sheet, clew up, haul up the buntlines, steady the yard, lay out and furl the sail.

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310. *To take in a Topmast Studding Sail.*

Man the downhaul, deck sheet, and boom jigger, attend the halyards, tack and short sheet, have men on the yard to light in the boom, ease away the halyards and short sheet, haul down the yard to the tack block, ease away the tack and haul in the sail by the deck sheet and downhaul, rig in the boom, and secure it, unhook the burton, and unbend the gear.

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311. *To reef Topsails and Courses.*

Call all hands, reef topsails, man the topsail clewlines and buntlines, weather braces and downhaul tackles, have hands to attend the halyards, bowlines, and lee braces, clear away the bowlines, round in the weather braces, ease away the topsail halyards, clew down, haul up the buntlines and out reef tackles; haul taut the halyards again. Luff to, shake the topsails, lay aloft topmen, man the boom tricing lines. In taking in the first reef the band is hauled well up on the yard, the earing passed from forward aft, and the forward points should be well taut. The second reef

band comes below the first, and the third below the second; the earings passed in the same manner. The close reefed band comes directly under the yard; this earing is passed from aft to forward, and the after points are hauled well taut, before knotting, light over to windward, take two outer turns with the earing, then expend the end through the thimble and over the yard; light over to leeward, pass your earing and take care to tie the points clear of the top-gallant sheets. In close reefing it is necessary to start the sheets, in order to get earings close out. Lay in, down booms, lay down from aloft, excepting the men stationed to overhaul the reef tackles, and light the rigging up. Let go, and overhaul the reef tackles and buntlines, lead along the topsail halyards, attend the braces and hoist away; take care not to hoist them so taut as to endanger the yards. When up, trim the sails, and haul the bowlines, hook and haul taut the rolling tackles.

Haul up the courses, overhaul and hook top burtons to the reef pendants, and haul them taut, slacking the leech lines and clew garnets, and haul taut the lifts and braces, trusses and rolling tackles. Lay aloft lower yard men, man the boom jiggers, trice up, lay out and reef. The earings and points are passed like those of a topsail, observing to pass the latter clear of the topsail sheets. The second reef is generally taken with a line; the points taken

out of the sail for that purpose; the line is cut in four pieces, which are used as a lacing; when reefed, lay in, down booms, and lay down from aloft; unhook the burtons, and set up the courses, clew up and pipe down.

NOTE. To reef when going large, luff to so as to shake the sail; to close reef, clew up. (See reef lines for topsails.)

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312. *To Reef Topsails, in Stays.*

Call all hands to tack ship, send aloft one watch of Topmen, and see the remainder properly stationed, ease down the helm and haul over the spanker sheet, as she comes too, overhaul the lifts and trusses and when hard down, "Helm's a lee," ease off the jib, and if necessary the fore sheets, when the leeches of the courses shake; rise tacks and sheets; overhaul, and bear abaft the weather back stays, when the wind is about a point on the weather bow, stand by the main and mizen topsail halyards, (main sail hawl,) let go the main and mizen topsail halyards, and take care not to brace them up too much, let the men from the clew garnets and braces, haul out the reef tackles, and up buntlines, trice up, lay out and reef, set up the after breast backstays, and man the head braces, when head to wind, brail up the jib,

cant the spritsail yard, bear over the spanker boom, and haul aft the jib sheet, as soon as it will take; when she gets sternboard, shift the helm when the spanker and mainsail are full, stand by the fore topsail halyards, (let go and haul) ease away the halyards, and let the men from the jib brails and fore clew garnets, haul out the reef tackle, and up buntlines, avast bracing, trice up, lay out and reef, set up the forward back stays. As soon as the main and mizen topsail are reefed, let the men lay in, down booms and overhaul the rigging, lead along and man the halyards, attend the braces, hoist away and trim the topsails by the braces, which will catch her, if falling off, as soon as the fore top sail is reefed, send the men down, brace up the fore yard, lead along, and man the top sail halyards, hoist and trim the sail, trim all sharp, haul the bowlines, haul taut the lifts, trusses, and rolling tackles. Clear up and pipe down.

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313. *To Part a Weather Topsail Brace Reefing.*

Haul the lee reef tackle close out so as to tauten the leech, haul forward on the lee top bowline, clear away the weather one, the lee braces and trusses, and round in on the weather brace; when the yard is clear of the topmast rigging avast hauling and reeve preventer braces immediately.

NOTE. The burton might be hooked from the weather yard arm to the after part of the top to windward.

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314. *To Part a Topsail Parrel.*

Haul taut the braces, take a piece of stout rope, and pass it around the topmast, and the strops of the tye blocks, heaving it taut, pass a new parrel.

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315. *To Take in a Close Reefed Topsail.*

Steady well the topsail and lower yards, rounding in the weather topsail brace as much as possible, man the clewlines and buntlines, attend the sheets and bowlines, clew up the lee sheet, and haul up the buntline, if to save the yard, haul up to leeward, first point the yard to the wind, and steady it again, lay out and furl the sail.

NOTE. The sail is not clewed down, because when a topsail is close reefed the yard is barely clear of the cap.

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316. *To Take in a Course.*

Steady the yard as securely as possible, man the

clew garnets, buntlines, and leech lines, ease away the tack and bowlines, haul up to windward, ease off the sheet, haul up, get the sail close to the yard and furl it.

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317. *To Take in a Spanker.*

Man well the brails and weather vang, attend the outhaul and lee vang, ease away the outhaul, haul over on the weather vang, brail up to leeward, ease off the sheet, haul taut the weather brails, pass the foot gaskets, steady the gaff and crutch the boom.

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318. *To Take in a Jib.*

Man the downhaul, attend the halyards and sheet, let go the halyards, ease off the sheet handsomely, haul down and stow it.

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319. *To Set a Close Reefed Topsail.*

Point the yard to the wind, and brace the lower yard a little sharper than the topsail yard; man the sheets, attend the buntlines, and loose the sail, overhaul the lee buntline, ease down lee clewlines, and

haul home the lee sheet, ease off the weather bunt-line, at the same time slack down the weather clew-line, and haul home the weather sheet, hoist the yard up clear of the cap, brace up, and haul the bowline, steady the lower and topsail yards, with braces and rolling tackles.

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320. *The Jib Splits.*

Mind the weather helm, haul the sail down, and hoist the fore topmast stay sail, hitch the downhaul around the body of the sail, also pass stops around it, take the end of a rope from the fore castle and bend it on to haul in by. Turn out the jib stays, bend a line on to the end and unreeve it, haul taut the halyards, ease off the downhaul and haul in, get up, overhaul, and bend a new one, seize on the sheet, bend on the halyards, and downhaul, stop the sail, haul out by the downhaul and halyards, reeve the jib stay, turn it in, set it up, pass the tack lashing, and reeve the brails, set the jib and haul down the stay sail.

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321. *A Close Reefed Topsail Splits.*

Clew the sail up and steady the yard, cast off some of the rope bands, so as to pass stops around the sail

to secure it, unbend the sheets, bowlines and lee buntlines, unreeve lee clewline and reef tackle, fetch the weather buntline round the sail, and make the lee earing fast to the buntline, hook a burton to a strop around the sail, cast off all the rope bands and lower away, ease away the weather earing and lower away the sail on deck, stretch the new sail, overhaul it, then reef the sail at the foot, commencing at the close reef, and taking each of the three lower reefs separately, then bight it down and send it aloft as described before, observing to use the weather topsail halyards, reeve and bend the gear, stopping the head of the sail to the buntlines, have yard jiggers hooked to bring the sail to the yard, pass the earings and rope bands, also in the same manner, bring the first reef to the yard, cast out the fourth reef, haul up the sail, then bring the reef to the yard, after which seitthe sail as before.

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322. *A Course Splits.*

Haul up the sail, cast off a few rope bands to pass stops around it, unbend the leech lines, slablines and bowlines, cast off the lee earing and make it fast to the lee buntlines, lower away the clue garnets, and buntlines, ease off the weather earing, and lower on

deck, unbend the buntlines, unlash the tack, sheet and clew garnet blocks, overhaul the new sail, lash on the blocks and bend all the gear, pass stops around the sail to keep it home, then bring it to the yard, with yard jiggers and buntlines as in No. 173; when the sail is bent, cast off the stops and set it.

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323. *To Bend a New Course, before the Old one is Unbent.*

Overhaul the new sail athwart the deck, stopper the clews of the old one, unreeve all the gear excep the clew garnets, bend the gear to the new one, stop the head to the buntlines, hook yard and clew jig gers, send men on the yard to cast off every other rope band, and unreeve the head earings, out of their respective strops, making them fast around the yard, sway up the new sail, forward of the old one, bring it to the yard, and bend it the same, as if there were no other bent, overhaul the rigging and set it, haul up the old one, cast off the rope bands and send it down by the burtons or top gallant yard rope and clew garnets, unreeve the clew garnets, and reeve them to the new sail, pass the remainder of the rope bands.

NOTE. This plan might be of advantage, when in chase, when the sail has been riddled with shot. In

lowering either a topsail, or a course, the top gallant yard or mast rope is useful, making it fast round the bunt.

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324. *To Secure the Guns for a Gale.*

The lower deck guns were secured, when the ship first got to sea. The main deck guns should be run in and secured in the same manner, then put in the upper half ports and port bucklers, particular care should be taken not to wood the tompions, as the great object of housing guns is to take the strain off the side of the ship.

To secure a carronade, run in and put the housing chock in, forward of the gun, haul taut the side tackles, and rack the falls, hook the train tackle around the breech as before, pass the breast lashing, and secure the equipments of the gun.

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325. *The Breeching Bolts begin to Draw.*

Reeve hawsers fore and aft, set them well taut, lash them to the pomelions of the guns, then frap them between every two guns, with stout lashings to the fighting bolts.

326. *A Gun Breaks Adrift.*

Chock it with hammocks, and lash it in the best manner possible, get to its own port the first opportunity, reeve a new breeching, train and side tackles.

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327. *To Send down Top Gallant Yards.*

Call all hands down top gallant yards, unhook the top gallant tye, hook or lash the jack block to it, reeve top gallant yard rope, bend it on to the slings of the yard, and two thirds out to leeward, unbend all the gear, bend on the tripping line and send it down to windward, trice up the jack block, man the yard rope, and lee lift, attend the lee braces and weather lift, haul in a little of the weather braces, to clear the topsail yard, and when all ready, "sway away," bousing on the lee lift, and casting off the Parrel lashing, at the same time unrig the yard arms, lower away and stop the yard amidships on deck, stop the gear, sway in, trice down the jack block, and round up top gallant yard ropes.

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328. *To House Top Gallant Masts.*

Hook top blocks, and reeve the short mast rope, hook mast burtons, and man the falls, attend the

lanyards of the rigging and stays, slack a few inches, sway away and take out the fids, and lower, hauling down on the back stay, and fore and aft stays, when low enough take a turn with the falls, pass heel lashings through the fid hole, and around the topmast, having old canvass in the wake, stop in the rigging, sheepshank the backstays, and take in the slack of the fore and aft stays. If the masts are to be sent down on deck, the long mast ropes are to be rove, and the burton hooked to a lizard, dogged up the mast rope, sway up, out fid, and lower as before; bend on and send down a heel rope as a guy, rack both parts of the mast rope together, hitch it around the top gallant mast head and mast rope, take a turn with the mast rope on deck, come up the burton fall, unhook it and take off the lizard, lower away, clapping stops around the mast rope and pole as it goes down, stow it amidships, on deck, and round up the mast rope. Lash the cylinder and royal rigging to the topmast cap, stop it in below, take in the slack of the stays, and sheepshank the back stays.

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329. *On a Lee Shore, Under Top Gallant Sails, Jib, Courses and Spanker, the Wind increases to a three reefed Topsail breeze.*

Take in the top gallant sails, jib and spanker, hoist-

ing the fore topmast and mizen stay sails at the same time. Clew down the fore and mizen topsails, take in three reefs and set them. Clew the main down, reef and set it. The gradual reduction is made to keep way on the ship constantly.

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330. *To Tack Ship Under Double Reefed Topsails.*

Call "all hands about ship," and station them properly. Watch for a smooth time, ease down the helm, haul down the jib, haul aft the spanker sheet, as she comes too, "helm's a lee," ease off the fore sheet, keeping the tack fast to help her round against the sea, when the leeches of the courses lift, rise main tack and sheet, overhaul lifts and trusses, and bear abaft the breast back stays, the wind nearly ahead. "Mainsail haul," set up the after breast back stay falls, brace sharp up the after yards, haul the bowlines, shift over the jib sheet, cant the spritsail yard, run up the jib as soon as it will take, and bear over the spanker boom. When she gets sternway shift the helm, rise fore tack and sheet, when the after sails fill, "let go and haul." Haul forward fore tack and fore top bowline, set up the forward breast back stays, and if she falls rapidly off, avast bracing as she comes to meet her with the helm, brace up,

gather aft, brace the yards, haul taut weather braces, lifts, trusses, rolling tackles and bowlines, clear up and pipe down.

NOTE. The head yards are not braced in. In order to preserve the ship's headway to enable her to pass the direction of the wind in light breezes, and a smooth sea, bracing in is an advantage.

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331. *Missing Stays, to Club-haul Her.*

As this is only done on a lee shore, rouse up a range of the cable, bend and bitt it, have hands by the lee anchor, and others standing by to cut or slip the cable, ease down the helm and proceed as in tacking, if she makes a stand before bringing the wind ahead, she will fall off again, therefore let go the anchor, and haul the mainsail, when the main tack is down shift the helm, for a sternboard, and being sure of the cast, cut or slip the cable and run the jib up, as soon as it will take, when full abaft, haul the head yards, &c.

NOTE. A hawser from one of the lee quarter ports, may be bent to the cable or anchor, which being boused upon, will act as a spring to bring her stern to windward.

332. *To be on a Lee Shore under close reefed Topsails, reefed Courses, and Fore Storm Stay Sail, it is necessary to reduce sail.*

A ship in this situation, should have her preventer braces, tacks, sheets, and lifts, rove so that the yards are well steadied. Take in and furl the close reefed topsails, pointing the yards to the wind, endeavour to claw off under reefed courses, and fore storm stay sail.

NOTE. A ship can be much nearer the wind, under her courses alone, than she can if she has close reefed topsails over them, since the latter cannot be braced, so as to bring the wind much forward of the beam. Another advantage is, that the courses being much nearer the centre of gravity, do not bury her so much.

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333. *A Ship on Shore, what to do.*

Out boats and spare spars, with which construct rafts, carry out and place the anchor for heaving off. Send down the light spars, yards, and topmasts, rig in jib boom, get out all the stores and provisions, and place them on the rafts which are anchored by kedges. Start all the water, and bend buoy ropes to the guns, and heave them overboard; if the tide falls much before the preparations can be made, get shoars out

to keep her upright. Break out the hold, lash the casks, under the bottom, get out kentledge and stow it on the rafts.

At high water, heave her off the same way she came on. Moor her securely, stow the hold and weigh the guns.

NOTE. It would be advisable to unhang the rudder.

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334. *Precautions for Scudding.*

Scudding should be performed under as little sail as possible, so that in the event of broaching too, or being brought by the lee, she can be more easily recovered. The sails under which ships are generally scudded, are a closed reefed topsail, fore sail, and fore storm stay sail. The relieving tackles should be hooked, and hands stationed by them. A tackle hooked to the lee fore tack, would be of service in filling the fore sail. When brought by the lee, the yards should be well steadied, and breast back stays well rigged out, the braces and bowlines, lifts and trusses, rolling tackle, and backstay falls, should be clear for bracing around. The clew garnets, clewlines, and buntlines, lead along ready for hauling up the sails.

335. *A Ship Broaches too.*

Meet her with the helm, and lee head braces, if necessary, shiver the after yards; should she still come too, and the sails taken aback, brace about the head yards, and use the helm if necessary, if she should get too much sternboard, in falling off, haul up the fore sail and pay her off with the fore storm stay sail, fill the after yards as soon as possible, to gather headway, and when she has fallen off sufficiently, brace about the head yards, and trim as before.

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336. *Brought by the Lee.*

If she has headway, which probably will be the case, put the helm a-weather, but if she has sternway put it a-lee. Man the braces and fore clew garnets, brace about the head yards, and keep the others barely full; when before the wind square the head yards, and bring her to her course again. If the main topsail will not brace about readily, let fly the weather sheet and clew up, the wind acting on the clew only, will bring the yard round, when the weather sheet may be hauled home again.

NOTE. A ship might be said to be brought by the lee, when struck aback by a change of wind. Use the helm for headway or sternway as before, brace

round the after yards, and when they are full, the head ones. This is the principle of tacking, but is not thought as well when scudding in a gale, as the ship might get too rapid sternway, which would be dangerous in a heavy sea. As the object is to preserve the headway, the yards are braced round as soon as possible. If scudding under the main topsail and it becomes necessary to reduce sail, take in the fore topsail, for the main being nearer the centre of gravity, has less tendency to bury the ship, and she is consequently more easily steered. In scudding under main topsail and foresail; the ship is to be brought by the wind. Should she have a tendency to gripe, keep the foresail on her, but if otherwise, take in the foresail, and set the fore storm stay sail, brace up the head yards, then the after ones, watch for a smooth time, and ease down the helm, taking care to meet her in due season. The reason for bracing up the head yards before luffing is, in scudding, the ship has a rapid headway, and will mind the helm very quickly; moreover, the sea acting with violence on the quarter, will throw her up into the wind, and unless the head yards are braced up so as to prevent that, she will be in the same situation as if she had broached too.

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337. *To Heave the Ship too.*

Having determined from the known quality of the

ship, what sails would be best to heave to under—bring by the wind as in the last question. If going to lay too under a main topsail when by the wind, haul up and furl the foresail, down fore storm stay sail; if under the lower stay sails, hoist them, taking in the fore sail and main topsail at the same time. The helm is kept a lee whilst laying too.

NOTE. It is best to bring by the wind under the square sails, as the ship is more under command than she would be if they were furled.

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338. *To Veer Ship, under close reefed Main Topsail and Storm Stay Sails.*

Call all hands "veer ship," and station them, have lifts, trusses, and rolling tackles attended, so that the yard and top-mast may be well supported in the heavy rolling which they are likely to experience. Haul down the mizen storm-stay sail and when she falls off, up helm, ease off the main storm stay-sail sheet, and brace in the main yard and cross jack-yard, at the same time taking care to keep the main top sail full, to preserve the head way, and to keep her a-head of the sea, also to keep it from splitting, when the wind is on the quarter, haul down the main storm staysail, and shift over the sheet, when before the wind, right the helm and square the head yards, shift over the fore storm staysail sheet, watch

for a smooth time to bring her to, ease down the helm, and hoist the mizen storm staysail when the wind is on the quarter brace up the yards, hoist the main storm staysail, haul aft the fore storm stay sail sheet, meet her with the helm, trim the sails and haul the main top bowline.

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339. *To Veer under a Mainsail.*

Make fast a hawser to the slings of the main yard, take it down forward of the sail, haul it well taut and belay it to the topsail sheet bitts. Call all hands and station them as in the last case, take advantage of her falling off to put the helm up. Ease off the main sheet, and gather in the lee tack, using the yards as in ordinary cases. Should she not go off, send down the cross jack yard, and mizen topsail yard, house the topmast and get a drag over the lee quarter, after which proceed as before, in bracing the yards, and bring by the wind.

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340. *To Veer under Bare Poles.*

Send down the after yards and mizen topmast, get a span on the mizen topmast, and bend a hawser to it in board. Send men in the weather fore rigging with tarpaulins, up helm and make use of the yards

as usual. If she should not go off, cut away the mizen mast as a last resort, and veer away the hawser and use the mizen top-mast as a drag to assist in wearing.

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341. *To Cut away the Masts.*

Clear away all the running rigging attached to the mast, cut away the lanyards of the lee rigging, then the lanyards of the stays and weather rigging.

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342. *Laying Too under Lower Stay Sails, Veer Ship.*

If it does not blow too fresh, the close reefed main topsail may be set, as some lofty sail is necessary, to prevent the ship from being pooped; then proceed as in No. 340. If she should not go off, clap a lashing round the bunt of the foresail, and set the weather goose wing. Should she still not go off, send down the after yards and mizen topmast, making a drag of them. If they have no effect, cut away the mizen mast.

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343. *Laying Too, a Sail is Discovered Ahead, and Close on Board.*

To prevent both ships from coming in contact,

which would be the destruction of both, extraordinary measures must be resorted to. When laying too, a ship is not under the immediate command of the helm, and as there would be great danger of a collision in case the sails were so arranged as to veer, because she would immediately shoot ahead. Therefore the yards are braced immediately for box-hauling, and the dangerous experiment must be tried, in order to avoid the still more dangerous consequences of getting foul of each other.

NOTE. Under all sail and close hauled, if a shoal or rock is discovered suddenly ahead, box-haul her; this must be done by putting the helm hard a lee at once, and bracing the yards around as soon as possible, so as to deaden the headway. But if a sail is made close ahead, it is a general custom among sailors, for the ship on the larboard tack to give way, the ship on the larboard tack consequently clapping the helm up, and the one on the starboard tack hard down, thereby running clear of each other. Remember this.

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344. *The Fore mast is Carried Away.*

Hard up the helm, brace in the after yards, hoist the main stay sail, take in after sail, and endeavour to get her before the wind; if successful, keep her so, by veering a range of cable over the stern and

lashing it amidships; if not, which is more likely to be the case, and should carry away the main topmast also, lay her too under the main stay sail. If the main topmast should stand, clew up the main topsail immediately, get the breast back stays over the topsail yard, and set them up as far forward as possible, by means of tackles. Bend hawsers on the wreck, clear it away, especially the lanyards of the lee rigging, so as to preserve the channels and chain bolts, and endeavour to haul it aboard. Send down the after yards and spars, and save as much of the wreck as possible. Rig a jury fore mast, fitting spars and sails to the best advantage; when the jury mast is rigged, reeve a main topmast stay, of a hawser, and take the breast back stays aft again, after which cut clear of the wreck.

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345. *To rig a Jury Mast.*

Take a spare spar, the largest in board, a main topmast for instance, and launch the head over the night heads, the heel resting against the stump of the old mast, put on crosstrees and bolsters, fit the rigging and stays from hawsers, and hook a couple of tackles from the jury mast head, which take to the side and haul taut, hook another, which take well aft, lash the heel to the stump to prevent slipping, and raise the mast with the after purchase, tending the

stays and pendant tackles, when up, reeve the lanyards, set up the rigging and stays, cleet and lash the heel securely, ship the cap, send up a top-gallant mast for a topmast, fit a topsail yard for a lower yard, and a top-gallant yard for a topsail yard.

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346. *The Main mast is Carried Away.*

Hard up the helm, secure the mizen topmast if it still stands, clear the wreck, save as much as possible and rig a jury main mast.

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347. *The Bowsprit is Carried Away.*

Hard up the helm, shiver the after yards, take in after sail, and get the ship before the wind ; take the fore topmast breast back stays forward over the topsail yard, hook the pendant tackles, and set them up to the cat heads, unreeve the main topmast and spring stays, and set them up to the fore topsail sheet bitts, hitch a hawser to the fore topmast head, take this in through one of the hawse holes, and set it up on the gun deck. While this is performing, let some hands be reducing sail, sending down top-gallant yards and masts if they are aloft, and clearing the wreck, rig a jury bowsprit of a spare main topmast or a jib boom.

348. *A Topmast is Carried Away.*

Get the ship before the wind immediately, and reduce sail, hook the top blocks and reeve hawsers through them, bend the lee one to the topsail yard, which is probably hanging to leeward of the topmast with the wreck, clew up the topsail if practicable, and cut the parrel if it can be got at. The yard now hangs clear of the topmast, bend the weather hawser to the wreck of the topmast, have guys from the weather side of the deck, clear away the lanyards of the rigging and stays, also the rigging leading to the topmast head, and send it down on deck. Hook the yard tackles, slack the braces and trusses, bouse the lower yards forward and send down the stump, get the topsail yard down in the lee gangway and repair its damages, while the spare topmast is got aloft, and secured by the old rigging. Send aloft the yard, set the topsails, and bring her to her course again.

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349. *The Jib Boom is Carried Away.*

Mind the weather helm, hoist the fore topmast stay sail, and get in the wreck by the fore pendant tackles hooked to the fore stay, reeve a heel rope and get in the stump, point another boom, and rig it with the old rigging if sound, if not, with spare ropes or hawsers.

350. *The Foremast and Bowsprit Carried Away.*

Proceed as in No. 347, the remarks being applied to the present case. Lay too under the main stay sail to leeward of the wreck and repair damages on board in the best manner possible: rig a jury foremast and bowsprit, and then cut clear, having saved as many spars, sails, and as much rigging as possible. If the ship lays easily by the wreck, it would probably be well to ride by it, until the gale abates. If it is absolutely necessary to veer, it might be done as in No. 344, with the assistance of the mainsail, making use of the wreck as a drag, by taking the hawser as a spring to the quarter.

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351. *The Bowsprit is Sprung.*

Up helm, shiver the after yards, take in after sail, and get the ship before the wind, haul down the head sails, come up the main topmast stays, and set them up on deck, get the fore topmast breast backstays forward, hook the fore pendant tackles, and set them up to the cat head. Come up all the head stays, and rig in the head booms. Send down upper yards and masts, take the fore topmast stays through the hawse hŏles and set them up.

Note. All strain being now off the bowsprit, fish it with the regular fishes, if there are none on board,

use the jib boom, if thought sufficiently strong to bear the strain of the head stays, get them in their proper places, but if not, get stays out merely to make sail.

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352. *The Foremast is Sprung Near the Hounds.*

Get the ship before the wind immediately, reduce sail and get all strain off the foremast, secure the main topmast as in No. 344, send down top gallant yards and masts, hook the jeers and settle the fore yard, hook top blocks, reeve top pendants, and house the topmasts allowing the heel to come considerably below the defect, fish the foremast with side fishes and the heel of the topmast, wedging the lashings. Clap a lashing around the doublings of the mast head, having chocks between, keep the pendant tackles rove, turn in the rigging afresh, and set it up, wedge the topmast in the cap, and sway the fore yard, close up to the heel of the topmast, reef the head sails to diminish the strain, if required.

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353. *A Topmast is Sprung Near the Lower Cap.*

Get the ship before the wind and reduce sail. If a spare topmast is not to be had, the old one may be housed far enough to allow the spring to come some

feet below the cap, setting the lower yard as in the last case, fit a large chock between the topmast and lower mast head, and clap stout lashings around above and below the defect part, wedging them well, reef the fore sail so that it can be set with the yard in its present place, and also the topsail, to lessen the strain on the weak spar.

NOTE. Sheepshank the rigging if required, before setting up.

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354. *To Send Aloft a Topmast and a Heavy Sea on.*

After the topmast is pointed and rigged, hook the burtons to stout strops at the rim of the top on each side, hitch hawsers to the mast head leading one through a large block at the fore top mast head, and another aft, through one at the mizen. Haul the burtons and hawsers taut. Sway aloft the topmast, slacking up as it goes aloft, when fidded, steady the topmast until the rigging and stays are set up.

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355. *The Gammoning Carried Away.*

Proceed as in No. 347, until all strain is off the bowsprit, bolt a stout chock on the bowsprit and pass the end of the messenger out of a hawse hole, over the chock in through the other hawse hole and bitt

it, take the other end to the capstern, and get the bowsprit well down in its bed by the messenger and bob stays, come up the old gammoning and pass a new one.

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356. *A Lower Cap Splits.*

Take all sail off the mast, pass a stout lashing around the topmast, and lower mast head, which wedge, after which woold, and wedge the cap.

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357. *The Trussle Trees are Sprung.*

Get the ship before the wind, take all sail off the mast, send down top gallant yards and masts, housing the others, hook the top blocks, reeve top pendants, hook top tackles, and bouse them well taut, taking all strain off the fid, pass several stout lashings around the heel of the topmast and lower mast head, cleating them to prevent them slipping, make sail, as the mast will bear.

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358. *A Lower Yard is Carried away in the Slings.*

If the foreyard. Get the ship before the wind, haul up the foresail, clew up the topsail, take in all the

sail on the mizen mast, unreeve the fore top sail sheets and board them on deck, bring her on your course again, and haul the bowlines.

If a main yard, keep on the course, haul up the main sail, clew up the topsail, unreeve the sheets, board them on deck, and haul the bowlines well out, having proceeded thus far, get stout strops around the inner quarter of the yard, and hook the pendant tackles to bolts in the lower cap, and these strops, if the pendant tackles are not at hand, use the burtons.

Lash the jeer blocks, reeve the jeers, and send the yard down by the jeers, lifts and pendant tackles, fish the lower yards immediately if it can be done, if it cannot, rig a topsail yard for a lower yard.

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359. *A Topsail Yard is Carried Away.*

If it is the fore, reduce after sail, mind the weather helm, and keep the ship on her course. If it is the main stand on, then clew up the sail, unbend it, and get it into the top in the best manner possible, get a strop round the topmast head, above the eyes of the rigging, to which hook a large single block, and reeve a hawser through it. If the yard is completely broken off, bend the hawser which is not secured by the parrel, bend on guys and send it down, then send down the other piece. If it still remains to-

gether, bend on the slings, stop out to leeward, have a tripping line and rolling ropes, and get it fore and aft on deck, take off all the old rigging, which put on to the spare yard in the chains, then bend on the hawser, sway aloft and cross it as in fitting the ship out, have rolling ropes around it as it goes aloft, bend the topsail and set it.

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360. *The Ship leaks Faster than the Pumps can free her.*

Find out where the leak is, thrum an old sail very thickly, and some stout ropes attached to each leech, make it up, take it under the bowsprit, and get the ropes on their respective sides, heave the ship too, when her headway eases, drop the sail overboard, after it has sunk beneath the keel, break the stops, haul aft on the ropes, attached to each clew, when the body of the sail is over the leak, haul well taut all the ropes attached to the leeches and the head which will prevent the sail from going aft, when going ahead, make sail and continue pumping.

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361. *The Pumps are Choked.*

Hoist them out and clear them.

362. *A Shot gets loose in a Gun secured for a Gale.*

Prick the cartridge well down and pour vinegar enough into the touch hole to drown it.

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363. *To Throw a Lower Deck Gun Overboard.*

Fit a chock in the port sill, and slip a strop over the pomillion of the gun, to which from the housing bolt, hook a stout tackle, unlash the muzzle, heave up the breech, and put in the bed and coin, unreeve the breeching, throw back the cap squares, and place capstern bars under the breech to ease it, and prevent the gun from slipping back into the carriage again, man the side and port tackles, watch the roll, trice up the port briskly, run out and throw the gun clear of the carriage, by the breech tackles and capstern bars, shut in the port immediately.

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364. *To turn Reefs out of the Topsails and Courses.*

Hook the burtons to the reef pendants, and set taut the lower lifts, ease off the bowlines, rise a little of the tacks and sheets of the courses, and settle a few feet of the topsail halyards, haul taut the reef

tackles and buntlines, and if necessary, round in a little of the weather braces to clear the points of the lee rigging, commence casting off the points at the bunt, taking care to leave none tied, and turning one reef out at a time, ease away both earings together, overhaul the rigging; get the tacks on board, sheet home, hoist the topsails up to a taut leech, out bowlines and make sail.

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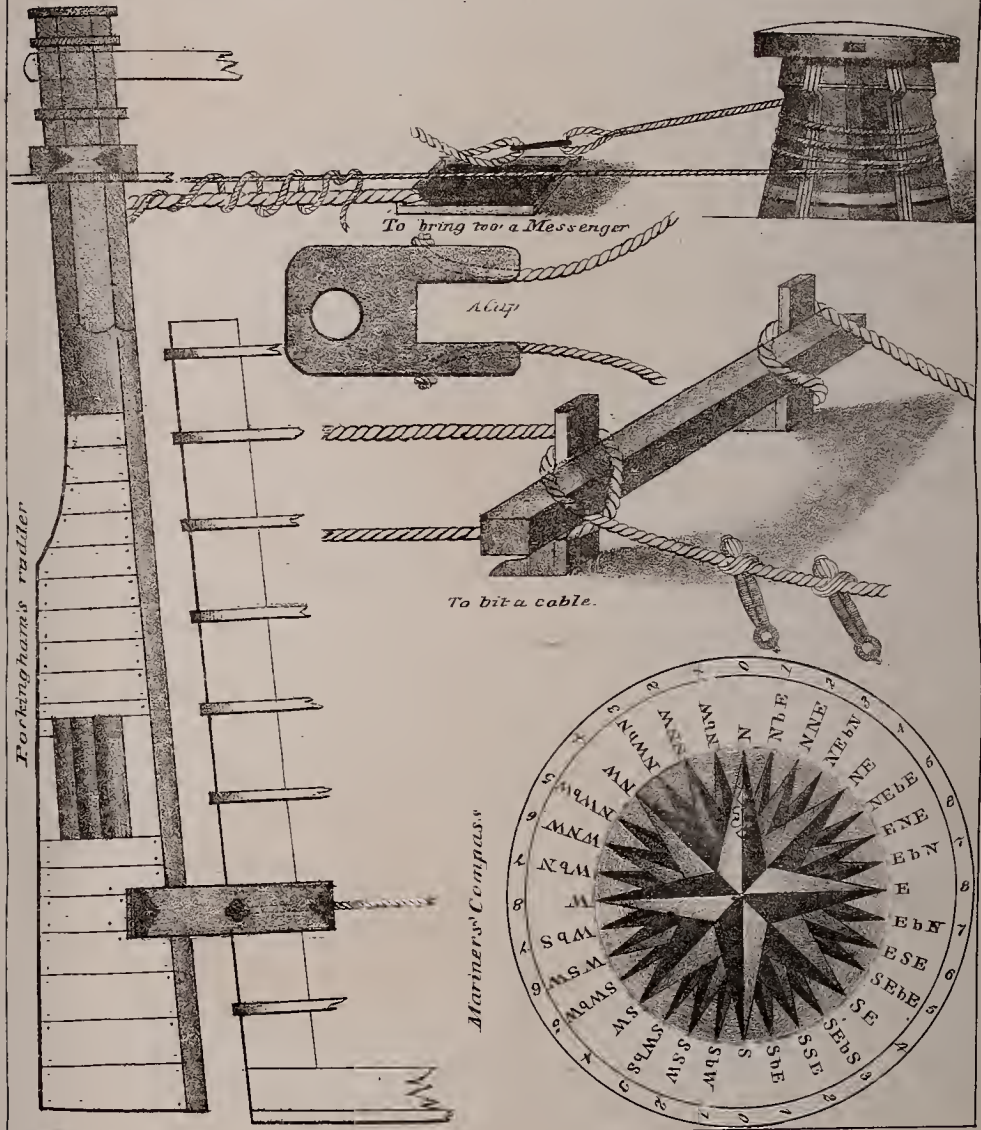
365. *The Rudder is carried away, to fit Another.*

Man the braces immediately, take in after sails and let the ship run a little free, rouse up a cable, clove hitch a hawser over the cable, and then pay it overboard, veer away about twenty fathoms and lash it amidships on the taffrail, lead the ends of the hawser through large blocks lashed to the quarters, and clap tackles on to them, steer the ship with this contrivance, until a rudder can be constructed by captain Edward Packenham's method. (see plate.)

Take a spare topmast, cut it the length of the rudder, enlarge the fid hole to receive the tiller if not already large enough, take a spare cap and cut away the after part, so as to fit the stern post at the waters edge, or a little below, pass the topmast through the round hole in the cap, take a spare jib boom and cut it in two, the pieces are to be bolted on abaft the

topmast after squaring the edges, which will come in contact with each other, and cutting a score in the forward part of the jib boom, next to the topmast, to allow the cap to have room to play in, plank the whole over with stout oak plank, and bolt in a fish abaft all, drive an eye bolt into the heel of the topmast (now the head of the rudder,) and have kentledge attached to the other end to sink it. Take an anchor stock, and square two of the edges, cut away a circular score in each for them to join together, around the topmast below the squares, and thus serve as an upper gudgeon, drive the anchor stock hoops on the rudder head to prevent splitting. Place the rudder on a stage near the taffrail, pass a couple of hawsers aft through the hawse holes, and secure them to the heel of the rudder, have tackles on their inner ends, have two more hawsers or parts of hawsers passed from forward aft, under every thing, one each side, and clinch them to the quarter eye bolts in the cap, have a pendant round as described in No. 172, launch overboard and rouse up on the head rope, heave in upon the hawsers, and bring the rudder to the stern post perpendicularly, secure the cap to the stern post and the anchor stock, around the rudder head, ship the tiller, reeve the wheel ropes, and rouse in the cable. The kent-ledge may remain to keep the rudder perpendicular or may be taken off.



G.W.Lewis Lith.

366. *A Ship on Fire.*

Hard up the helm, haul up the courses, up spanker, get the ship before the wind, and reduce sail to topsails, beat to quarters, close all the ports, muster the men at their stations, call away the fireman, under the charge of their proper officers, let a part fill the engine and wet the sails, while the other part finds out where the fire is, and endeavour to extinguish it if possible; extinguish it with bedding, putting over the gratings and tarpaulins. The gunner and his mates should be in the magazine, ready to drown the powder at a moment's notice. Let the carpenters rig and fetch the pumps, and the spar deck divisions, clear away the boats, equip them and get them ready for hoisting out. In the above case the fire is supposed to be below, and the helm is put up because wind is less felt, the ports are shut in, and tarpaulins put on, as they would afford air to the fire, and the courses hauled up, because they strike a current of air down the hatchways, and also liable to catch. If the fire is on deck and forward, keep before the wind, if aft, haul close on a wind.

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367. *A Ship on Her Beam Ends.*

When the severity of the squall is first felt, hard up the helm and let fly every thing, but if she goes

on her beam ends, before she can be got off sufficiently to diminish the effects of the wind, the best way will be to cut away the mizen mast, before the headway ceases, which falling over the lee quarter, will act as a drag to pay her off, should she not right when before the wind, if there is anchorage, and the cable is bent, cut away the lee anchor, which will bring her around, and catch the sails aback, or if there is not anchorage, get the drag to the lee bow by means of a spring and rouse in, the wind acting on the flat deck, and underside of the sails, will probably right her. As a last resort, cut away the masts, great decision and rapidity of execution is necessary, as the ship must go down, a short time after she goes over.

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368. *Wind free, all Sail set, struck by a Squall.*

Up helm, let fly the main sheet, spanker outhaul; staysail sheets, and halyards, royal and top gallant studding sail halyards, royal and top gallant sheets, and halyards, haul up the main sail, brail up the spanker, down staysails and order the topmen to haul in the studding sails and stow them. When before the wind right the helm, clew down the topsails, haul up the buntlines, and out reef tackles, and reef if necessary. Clear up the decks as fast as possible.

NOTE. In ordinary cases, sheets and tacks should be eased off, for if they should get foul when running through their blocks fast. Spars might be endangered, but when struck by a severe squall, the effect of the sails must be diminished as soon as possible to save the masts and prevent her from going over.

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369. *Struck by a Squall on a Lee Shore.*

If sail cannot be reduced, luff too and shake her, fill away again, gather head way and luff again.

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370. *Struck by a Squall under whole Topsails and Courses.*

Up helm, let fly main sheet spanker outhaul and lee topsail sheets, haul up the main sail, brail up the spanker, clew up the topsails to leeward, then to windward, and let go the halyards, right the helm and reef if necessary.

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371. *On a Wind, under whole Topsails, part the weather Main Topsail Brace.*

Haul up the main sail, let go the main brace, haul

forward on the lee main top bowline, and aft on the weather main brace, luff too and when the main topsail shivers, clew it down, haul up the buntlines, out reef tackles and steady the yard by the bowlines, until a new brace can be rove. A burton might be hooked as mentioned before, to steady the yard.

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372. *The Jib Downhaul parts.*

Untoggle the fore top gallant bowlines and knot them together above the first hank, between the stay and the luff and the jib.

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373. *To Chase.*

A vessel that chases another should have the advantage in point of sailing, because if the ship chased is as good a sailer as the chaser, the latter never can come up to her if she manœuvred equally as well. In order to determine, whether your ship sails faster than your adversary, get upon the same tack under the same sail, and keep upon the same course with her. Set her exactly with a compass and if your ship sails best, the sail will soon draw a point more aft, if she has the advantage, she will in a short time draw more forward, and if both sail equally well, she will remain at the same point.

374. *To Chase to windward.*

To chase to windward, run upon the same course with the enemy, until he is brought perpendicularly to the course, when tack and continue the second board, until he is again brought perpendicularly to the same course, always continue this manouvre by tacking every time the chase is abeam on either board, and she will be come up with in the shortest method, by your superiority of sailing. Should the chase pass the point, when the chase bears abeam, he must go about with all despatch.

NOTE. The chase goes about as soon as the chase is exactly abeam, because at that time the distance between them is the least possible upon the different boards they hold.

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375. *Observations for the Ship to windward, which is Chased.*

The weather ship will always be joined, since it is granted that she does not sail as well as the pursuer, it will be then to her advantage, to keep constantly on the same tack, without losing time to heave about, for tacking cannot be so favourable to her as to her adversary, whose sailing is superior.

If the chaser mistakingly stands on and tacks in

the wake of the chase, the best course for the latter to pursue is, to heave about and pass to windward of him on the other tack, unless you suppose your vessel would have a superiority in going large, for if the chaser persists in tacking, in the wake of the other ship, the chase will be much prolonged.

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376. *To Chase to Leeward.*

If the chaser keeps away, to cut the chase off, and keeps continually on that course they will at last come together, where the two courses intersect, this will be exactly executed by the ship in chase, if in the course she has taken, she keeps the chase continually upon the same degree of the compass, as at the beginning of the pursuit. This principle applies equally to all the courses which the retreating ship pursues, for if overtaken, it can only be accomplished by keeping in a straight line, if the chase takes another course, than that which keeps the two ships upon the same point. These are the only considerations to be made, and they may be corrected by observing the bearings by an azimuth compass.

377. *To Windward of an Enemy within pistol shot, the Weather Main Rigging is shot away, both ships with main topsails to the mast.*

Up helm, fill away and run the enemy on board, before she gets headway to prevent it.

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378. *Wind on the Quarter, all sail set, bring by under double reefed topsails.*

Reduce sail regularly and clew down the topsails, luff too enough to reef, hoist the topsails and haul close on a wind.

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379. *Wind on the Quarter, all sail set, bring too on the other tack, under double reefed topsails.*

Reduce sail to topsails, station the crew forward, with one watch of topmen aloft to reef; brail up the spanker, up helm, brace in, and when before the wind, clew down the topsails, haul out reef tackles and up buntlines, let the men lay out and reef; wind on the quarter, brace up cross jack yard, and haul out the spanker, as she comes too, brace up the fore yard, and meet her with the helm and jib sheet, when coming too, a good opportunity will be offered for

reefing; when reefed, hoist away the topsails, letting the main go up aback, the others full.

Having a dismasted frigate in tow, to heave too.

Make fast the stream cable to the main mast of the prize, and take it in at the weather gangway, clinching it around the main mast; make fast a stout hawser as a spring, and snatch it to a block lashed amidships on the taffrail, so that the prize may either ride on the weather bow, or be roused astern. In case of veering rouse in upon the spring, and the manœuvre will be performed with more certainty. After it is excuted, the tow rope must be shifted to the opposite gangway, by means of a spring.

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380. *How to get the Anchor off the Bows.*

Hook the fore pendant tackle, single the shank painters, and set them taut with the pendant tackles, come up the shank lashings, put the shoes between the bills and bows, by capstan bars, and lower them by the shank painters, as far as necessary. Single and set taut cat head stoppers, and then unlash the rings.

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381. *To Anchor, head to wind, wind free.*

See that the officers and men are at their stations,

and the strictest silence preserved as the ship nears her berth; take in all the studding sails, get the burtons off the yards and the jiggers off the top-gallant yards. Send the booms and sails down from aloft, man the fore clue garnets, buntlines, and leech lines, the mainsail is hauled up, as the ship is going free. Top-gallant and royal clewlines, "lay aloft," and stand by to furl the sails snug, and square the yards by the lifts and braces, have hands by the fore tack and sheet, top-gallant and royal sheets, halyards, weather braces and bowlines, up foresail, in top-gallant sails and royals, furl the sails snug, and square the yards by the lifts and braces, hauling taut the halyards. Man the topsail clew lines and buntlines, weather braces, jib downhaul and spanker outhaul, attend the sheets, halyards and spanker brails, ease down the helm, haul down the jib, haul out the spanker, and when the topsail lifts, clear away the sheets, and clew them up, then let go the halyards, clew down and square away the yards immediately, haul aft the spanker sheet, and when the headway ceases, stream the buoy, stand clear of the cable, when she begins to go astern, let go the anchor, brail up the spanker, crotch the boom, haul taut the guys, light too the cable as fast as she will take it, until a sufficient scope is out, when stopper. Furl sails, haul taut and stop in the rigging, send the boat's crews aft

to lower the boats down, let the boatswain go ahead to square the yards, and clear up the decks.

NOTE. If going to moor, veer out, double the moorings scope, and then let go the other anchor, now furl sails and heave in.

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382. *To Anchor on a Lee Shore.*

The ship being on a lee shore, and no room to veer, recourse must be had to letting go all the anchors. For this purpose all the cables are bent and ranged, and all the anchors got ready for letting go; the weather sheet is bitted to the forward bitts, and the weather bower to the after bitts to windward, the lee bower to the forward bitts, and the lee sheet to the after ones to leeward. No buoy rope is bent except to the weather sheet, the weather sheet is backed by the stream, and the other anchors with kedges, see all the tiers clear, get the ship under storm stay sails, and furl all the square sails, hook the yard tackles, get the lower yards forward and house topmasts, when all ready, keep her a little off to get headway. Let go the weather sheet and stream anchor and veer away, then the weather bower and kedge, down helm, haul down fore and main storm stay sails, and the drift to leeward will carry her to the berth of the last anchor, which let go, haul down the

mizen storm stay sail, and veer away an equal scope on all four cables, observe that they will bear an equal strain, and veer to a long scope, reserving sufficient to freshen the nip with. See that the cables are well rounded, and watch them carefully. If she should drag, sling the guns with the stoutest spare rigging on board, having a round turn around all these cables, and heave them over; if she should still drag, cut away the masts, and if there is no possibility of preventing her from going on shore, take a stout spring to one of the quarters, slip the cables, let her veer round and go on shore end on.

NOTE. In weighing these anchors, bring too, first on the cable which has got the least scope out, taking in the slack of the others with deck tackles.

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383. *Scudding under a Foresail, to come to an Anchor.*

Get both bowers ready for letting go, haul up the foresail, making a due allowance for headway, and run in under bare poles; when near the berth, down helm and haul out the spanker and aft mizen storm stay sail sheet, when by the wind, let go the weather anchor, and veer away briskly, when head to wind, let go the lee anchor, and haul down the stay sail, veer too and bring an equal strain on both cables, if necessary, let go more anchors.

384. *To make a Flying Moor.*

Make all necessary preparations for coming too, overhaul and bitt a double range of the weather cable, and bitt the lee one at the range to which she is to be moored. When approaching the anchorage, reduce sail to topsails, jib, and spanker, if moderate, but if fresh, to jib and spanker only. When near the berth of the first anchor luff too, stream the buoy, and when the headway has nearly ceased, let go the weather anchor, up helm, stand on and veer away roundly, to prevent the range from checking her, when the full range is nearly out, hard down the helm, down jib, clew up the topsails and out spanker; when the headway ceases, right the helm, up spanker and let her lay the range out taut, when taut let go the lee anchor, furl sails, bring too on the weather cable, veering away on the lee one, and heave in to the moorings. Moor taut to allow for veering, clap on service and veer it, square the yards, haul taut and stop in the rigging, and clear up the decks.

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385. *To Moor with a Large Scope of Chain.*

Shackle the ends of both chains together, and veer away nearly the whole of the two cables, then let go the anchor, bring too on the first cable, heave in, veering away on the other; when in to the moorings, clap on rounding, veer, stopper and unshackle the chains.

386. *Blowing Fresh in Port.*

Range the cables, see the anchor clear and an anchor watch set, have leadsmen in the chains, send down the upper yards if not already down, house top-gallant masts, and point the yards to the wind.

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387. *Send down Lower Yards.*

Send aloft the jeer blocks, lash them and reeve the jeers, see the gear of the courses clear, trusses unrove and lifts clear for unreeving, hook the yard tackles and take them forward, heave taut the jeers, unreeve the lanyard of the slings, attend the braces and yard tackles, lower away by the jeers and lifts, when down make all fast.

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388. *To house Topmasts.*

Hook top blocks, reeve pendants and falls, see the rigging clear that leads to the topmast heads, man the top tackle falls, slack the lanyards of the rigging, stays, and backstays; sway up, out fid, lower away and haul down on the rigging, when low enough, pass heel lashings around the lower masts, having canvass in the wake, haul taut the rigging and stays, sheepshank the backstays, haul taut the rigging and make all snug.

NOTE. The topmast may be housed with the lower yards aloft, by taking the yard tackles forward and bowsing upon them, slacking the braces and trusses.

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389. *To Back a Bower by a Stream.*

Bend the stream cable to the flukes of the bower anchor, observing to let go the stream first, and when the cable is taut let go the bower. If the bower is already down and dragging, form a clinch with the stream around the cable, and let her drag until she brings the stream ahead.

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390. *To Sweep for an Anchor.*

Make use of some long stout running rigging, middle it, attach some sinker to the middle, also along the bight to confine it to the bottom. Coil it away in two boats, and pull to windward of where the anchor is supposed to lie, then pull in an opposite direction, veering away on the bight from both boats, now pull in the direction of the anchor, and when the bight catches, cross the boats and get a round turn in the rope, make a running bowline on the end of a hawser around the rope and slip it down, when fast, weigh with the launch.

EXPLANATION OF SEA TERMS.

A back.—A Sail is a-back when its *forward* surface is acted upon by the wind.

A-baft.—The hinder Part of a Ship—Behind—thus *a-baft the Foremast*, means any thing nearer to the Stern than the Foremast.

A-board.—In the Ship—as the Cargo is *a-board*. A Ship is said to *fall a-board*, when she runs foul of another. To get *a-board* the Main Tack, is to bring the Clew of the Mainsail down to the Chess-tree.

About.—A Ship is said to be *going about*, when in the Act of Tacking; the Order for which is "*ready about there!*"

A-breast.—Opposite to.

A-drift.—Broken loose from the Moorings.

A-float.—Swimming—not touching the Bottom.

Afore.—That Part of the Ship nearest to the Stem, or Head.

Aft.—Behind—as "*Stand further aft*," stand nearer to the Stern.

After.—Hinder—as *the after Ports*—those Ports nearest the Stern.—*After Sails*, *after Hatchway*, *&c.*

A-ground.—Not having Water enough to float the Ship, which rests on the Ground.

A-head.—Before the Ship.

A-lee.—The Helm is *a-lee* when the Tiller is put to the lee Side. *Hard a-lee*, when it is put as far as it will go.

All in the Wind.—i. e. when the Wind blows on the Leeches, or outward Extremities of the Sails, and causes them to shake.

All hands, hoy !—The word given by the Boatswain and his Mates at the Hatchways, to assemble the Ship's Company.

A-loft.—Up above. In the Rigging. On the Yards. At the Mast Head, &c.

Alongside.—Close to the Ship.

A-midships.—In the Middle of the Ship. *The Helm is a-midships*, when the Tiller is not put over either to one Side or the other.

To Anchor.—To let the Anchor fall over-board, that it may hold the ship.

To foul the Anchor.—To let the Cable be twisted round the upper Fluke, &c.

To drag the Anchor.—When the Ship pulls it with her, from the violence of the Wind.

Anchorage.—Ground fit to anchor in.

The Anchor is a Cock Bill.—i. e. it is hanging by the Stopper at the Cat Head.

The Anchor is a-peak.—i. e. near to the Ship: thus at different Distances it is called a *long Peak*, a *stay Peak*, a *short Peak.*

The Anchor is a-weigh or a-trip.---i. e. loosened from the Ground by heaving in the Cable.

The Anchor is backed.---i. e. *another* Anchor is placed at a certain distance before it, and attached to it by the Cable of the former being fastened to it, which fixes it firmly in the Ground.

The Anchor is catted.---i. e. drawn up to the Cat-head.

The Anchor is fished.---i. e. its inner Arm is drawn up by the Fish Pendant.

To weigh the Anchor.---To heave it up by the Capstern or Windlass.

The Sheet Anchor.---is of the same Size and weight as the two Bower Anchors and the Spare Anchor; it is a resource, and dependence, should either of the Bowers part, for which purpose the Cable is always kept ready bent with a long Range, that it may be let go on an Emergency.

Best Bower or Small Bower Anchors.—Are the two Anchors which are stowed the furthest forward, or near the Bows.

The Stream Anchor.---is used to bring the ship up with occasionally, or to steady a Ship when she comes to a temporary Mooring.

The Kedge Anchor.---The smallest of the An-

chors, to which a Hawser or Cablet is generally bent.

An End.—Any Spar or Mast placed perpendicularly. The *Topmasts are an End*, they are sway-ed up and fidded above the lower Mast. *All an end*, all the Masts are up in their proper stations.

A-peak.—See Anchor.

Ashore.—On Land. A-ground.

A-stern.—Behind the Ship.

Athwart.—Across. *Athwart-Hawse*, across the Stem. *Athwart-ships*, any thing lying in a direction across the Ship. *Athwart the Fore Foot*, a shot fired by another Ship across the Bows.

A trip.—See Anchor. The Topsails are *a-trip*, i. e. hoisted up.

Avast.—To cease hauling. To stop.

A-weigh.—See Anchor.

A-weather.—The Helm is said to be *a-weather*, when the Tiller is put over to the windward side of the Ship. *Hard a-weather*, when it is put over as far as it will go.

Awning.—A Canvass Canopy placed over the Deck, when the Sun is powerful.

To Back the Sails.—To expose their forward Surfaces to the Wind, by hauling in the weather Braces.

Back Stays.—Ropes fixed at the Topmast and Top Gallant Mast Head, and extended to the Chains on the Ship's sides.

To bag-pipe the Mizen.---To bring the Sheet over to the weather Mizen Shrouds, in order to lay it a-back.

To balance the Mizen.---Rolling up a Portion of it at the Peak.

Ballast.---A quantity of Iron, Stone, Gravel, &c. placed in the Hold to give a Ship proper Stability, when she has no Cargo, or but a small quantity of Goods, &c.

Bands.---Pieces of Canvass sewn across the Sail, called *Reef-bands*; also a piece stuck on the middle of a Sail to strengthen it, when half worn.

Bar.---A Shoal running across the Mouth of a Harbour.

Capstern Bars.---Pieces of Timber put into the Holes in the Drum Head of the Capstern, (where they are secured with iron Pins) to heave up the Anchor.

Bare Poles.---Having no Sail up.

Battens.---Slips of Wood nailed on the Slings of the Yards, which are eight square—also over the Tarpaulings of a Hatchway, to keep out the water in stormy weather.

Bays.---In Men of War, the starboard and larboard sides between Decks, before the Bitts.

Beams.---Strong Pieces of Timber across the Ship, under the Decks, bound to the side by Knees. They support and keep the Ship together.

On the Beam.---When the Wind blows at a right Angle with the Keel.

Before the Beam.---When the Wind or Object bears on some Point less than a right Angle, or ninety Degrees, from the Ship's head.

Abaft the Beam.---When the Wind or Object bears on a Point which is more than a right Angle, or ninety Degrees, from the Ship's Course.

Bearing.---The Point of the Compass on which any Object appears. It is also applied to an Object which lies opposite to any part of the Ship---thus the Buoy, &c. bears on the Beam, the Bow, the Quarter, &c.

Beating to Windward.---Tacking, and endeavouring to get to windward of some Head Land.

Becalmed.---Having no Wind to fill the Sails. The Ship being deprived of the Power of the Wind by the intervention of high land, a large Ship, &c.

Beckets.---Short Straps, having an Eye in one end, and a double-walled Knot on the other, for suspending a Yard, &c. till wanted: such are the Beckets for the Royal Yards, for the Bights of the Sheets, &c.

To Belay.---To make fast.

Bend.---A kind of Knot---as a Sheet Bend, &c.---or a Seizing---such as the Bends of the Cable.

To Bend.---To make fast---as to bend the Sails, the Cable, &c.

Bends.---The Streaks of thick Stuff, or strongest Planks in the Ship's sides, on the broadest Part. These are also called *Wales.*

Between Decks.---Any part of the Ship below, between two Decks.

Bight.---Any part of a Rope between the ends. Also a Collar or Eye formed by a Rope.

Bilge.—The flat part of a Ship's bottom. *Bilge Water*, that which rests in the Bilge, either from Rain, shipping Water, &c.

Binnacle.---The Frame, or Box which contains the Compass.

Birth.---A place of Anchorage. A Cabin, or Apartment.

Bitts.---Large upright Pins of Timber, with a Cross Piece, over which the Bight of the Cable is put; also smaller ones to belay Ropes, such as Topsail Sheets, &c.

To Bitt.---To place a Bight of the Cable over the Bitts.

Blocks.---Instruments with Sheaves or Pulleys, used to increase the Power of Ropes.

Block and Block.---When the two Blocks of a Tackle are drawn so close together that there is no more of the Fall left to haul upon; it is also termed *chock a-block.*

To make a Board.---To tack.

To make a Stern Board.---To drive a Ship stern foremost, by laying the Sails a-back.

Boarding.---Entering an Enemy's Ship by force. These Men are called *Boarders.*

Boarding Netting.---Network triced round the Ship, to prevent the Boarders from entering.

Boats.---Small Vessels---those belonging to Ships are---the *Long Boat*, the *Launch*, the *Cutter*, the *Yawl*, and the *Jolly Boat.*

Boatswain.---The Officer who has the charge of the Cordage, Boats, Rigging, &c.

Bobstays.---Ropes rove through the Cutwater, and set up with Dead Eyes under the Bowsprit, to act against the power of the Fore Stays---sometimes one of these is taken to the *end* of the Bowsprit, to act against the Fore Topmast Stays.

Bolsters.---Pieces of Wood, or Canvass stuffed, placed on the lower Tressle Trees, to keep the Rigging from chafing.

Bolts.---Iron Fastenings, by which the Ship is secured in her Hull.

Bolt Ropes.---Ropes sewn round the edges of the Sails.

Booms.---Large Poles used to extend the Studding Sails, Spanker, &c. Also, spare Yards, Masts, &c.

Boom Irons.---Iron Caps fixed on the Yard Arms for the Studding-sail Booms to rest in.

Bows.---The round part of the Ship forward.

To Bowse.---To haul upon.

Bower.---See Anchor.

Bowlines.---Ropes made fast to the Leeches or Sides of the Sails, to pull them forwards.

Bowsprit.---A Mast projecting over the Stem.

Box-hauling.---A Method of waring or turning a Ship from the Wind.

Boxing off.---Turning the Ship's Head from the Wind, by backing the Head Sails.

Braces.—Ropes fastened to the Yard Arms to brace them about. Also a security to the Rudder, fixed to the Stern Post.

Brails.—Ropes applied to the after Leeches of the Mizen, and some of the Staysails, to draw them up.

To break Bulk.—To begin to unload.

To break the Sheer.—To swerve from the proper direction in which a Ship should be when at Anchor.

Breaming.—Burning the stuff which is collected on the Ship's bottom during a long voyage.

Breast Hooks.—Pieces of Timber placed across the Bows of the Ship, to keep them together.

Breast Work.—Railing on the fore part of the Quarter Deck, where Ropes are belayed.

Breeching.—A stout Rope fixed to the Cascabel of a Gun, fastened to the Ship's side, to prevent its running in.

Bridles.—The upper part of the Moorings laid in harbours for Men of War. Also Ropes attached from the Leeches of the square Sails to the Bowlines.

To bring up.---To come to an Anchor.

To bring to.---To make a Ship stationary, stopping her way by bracing some of the Sails aback, and keeping others full, so that they counterpoise each other.

To bring by the Lee.---When a Ship is sailing with the Wind very large, and flies off from it so as to bring it on the other side, the sails catching aback: she is then said to be brought by the Lee---this is a dangerous position in a high Sea.

To broach to.---Flying up in the Wind so as to bring it on the other side, when blowing fresh.

Bulk heads.---Partitions in the Ship.

Bull's Eye.---A wooden Thimble.

Bumkin or Boomkin.---A short Boom fitted to the Bows of the Ship for the purpose of hauling down the fore Tack to. It is supported on each side by a Shroud.

Bunt.---The middle part of a square Sail. Also the fore Leech of a quadrangular Staysail.

Buntlines.---Ropes attached to the foot of a square Sail to haul it up.

Burton Pendents.—The first piece of rigging which goes over the Topmast Head, to which is hooked a Tackle, to set up the Topmast Shrouds.

Bush.—Metal let into the Sheaves of Blocks which have iron Pins.

Butt End.—The end of a Plank in the Ship's side.

Buttock.—That part of the Ship's Hull under the Stern, between the Water Line and Wing Transom.

By the Board.—Over the side. A Mast is said to go by the Board when it is carried or shot away just above the Deck.

By the Head.—When a Ship is deeper in the Water forward than aft.

By the Stern.—The reverse of by the Head.

By the Wind.—When a Ship is as near to the Wind as her Head can lie with the Sails filled.

Cabin.—A Room or Apartment; also a Bed Place.

Cable.—A large Rope by which the Ship is secured to the Anchor. Cables take their names from the Anchors to which they belong, as the *Sheet* Cable, the *best* Bower Cable, &c. they are generally 120 Fathoms in length.

To bitt the Cable.—See Bitts.

To heave in the Cable.—To pull it into the Ship by the Capstern or Windlass.

To pay out the Cable.—To stick it out of the Hawse Hole.

To veer away the Cable.—To slacken it so that that it may run out, as in paying out.

To serve the Cable.—To wrap it round with Rope Plait, or Horse Hide, to keep it from chafing.

To slip the Cable.—To let it run clear out.

Cable Tier.—That part of the orlop Deck where the Cables are coiled.

To coil the Cable.—To lay it on the Deck in a circular form.

Caboose.—The place where the Victuals are dressed in Merchant-men.

Call.—A silver Pipe or Whistle used by the Boatswain and his Mates, by the sounding of which they call up the hands, direct them to *haul*, to *veer*, to *belay*, &c.

Canted.—Any thing turned from its square position.

Canvass.—Strong Cloth, of which the Sails are made.

Cap.—A Block of Wood which secures the Topmast to the lower Mast.

Capsize.—To turn over.

Capstern.—A Machine for drawing up the Anchor by the Messenger, which is taken round it, and applied to the Cable by the Nippers.

Careening.—Heaving a Vessel down one side, to clean or repair her Bottom.

Carrick Bend.—A kind of Knot.

To Cast.—To pay a Ship's Head off by backing the Head Sails when heaving up the Anchor, so as to bring the Wind on the side required.

Cat Block.—A large double or three-fold Block used for drawing the Anchor up to the Cat-head.

Cat Head.—A large piece of Timber or Crane

projecting over the Bow, for drawing up the Anchor clear from the Ship's side.

Cat-harpins.—Short legs of Rope seized to the upper part of the lower Shrouds, and Futtock Staves, to keep them from bulging out by the strain of the Futtock Shrouds, and to permit the bracing up of the lower Yards.

Cat's-paw.—A light Air perceived by its effect on the Water, but not durable. Also a twist made on the Bight of a Rope.

To Caulk.—To drive Oakum into the Seams of the Sides, Decks, &c.

Chains.—Links of Iron bolted to the Ship's side, having dead Eyes in the upper ends, to which the Shrouds are connected by the Lanyards.

Channels.—Strong broad Planks bolted to the sides, to keep the dead Eyes in the Chains from the side, to spread the Rigging further out.

Chapelling.—A Ship is said to build a Chapel, when by neglect in light winds she turns round so as to bring the Wind on the same part which it was before she moved.

Chase.—A Ship pursued by another.

Bow Chase.—A Gun in the fore part of the Ship.

Stern Chase.—A gun pointing a-stern in the after part of the Ship.

To Chase.—To pursue, to follow.

To Cheer.—To huzza. *What cheer ho!* A salutation.

Chock-a-block.—See Block and Block.

To clap on.—To make fast, as "*clap on the stoppers,*" *&c.*

To claw off.—To beat to windward from a lee-shore.

Cleats.—Pieces of Wood to fasten Ropes to.

Close-hauled.—As near the Wind as the Ship can lie.

Club-hauling.—Tacking by means of an Anchor.

Clues, or Clews.—The lower Corners of the square Sails.

Coamings.—The Borders of the Hatchways which are raised above the Deck.

Coiling.—Laying a Rope down in a circular form.

Companion.—A wooden Covering over the Cabin Hatchway.

Course.—The Point of the Compass on which the Ship sails. The Mainsail, Foresail, and Mizen, are also called *Courses.*

Crab.—A small Capstern.

To cun the Ship.—To direct the Helm's-man how to steer.

Cut-water.—The Knee of the Head.

Davit.—A Crane of Timber used for fishing the Anchors.

Dead Eye.—A Block with three Holes in, to receive the Lanyard of a Shroud or Stay.

Dog-Vane.—A small Vane made of Cork and Feathers, placed on the weather side of the Quarter Deck.

Dolphin.—A wreath of Rope placed round a Mast (see Pudding.)

To Douse.—To let fly the Halliards of a Topsail —to lower away briskly, &c.

Down-hauler.—A Rope to pull down the Stay-sails, Topmast Studding Sails, &c.

Drift.—Driving to leeward—driving with the Tide. Drifts are also those parts where the Rails are cut off and end with Scrolls.

Driver.—A large Sail suspended to the Mizen Gaff.

Dunnage.—Wood, &c. laid at the Bottom of a Ship to keep the Cargo dry.

Earings.—Small Ropes to make fast the upper Corners of square Sails, &c.

Ease off.—To slacken.

End for End.—To let a Rope or Cable run quite out.

End on.—When a Ship's Bows and Head Sails are only seen.

Fag End.—The end of a Rope which is untwisted.

Fake.—One Circle of a Coil of Rope.

Falling off.—When a Ship moves from the Wind further than she ought.

Fid.—A tapered piece of Wood or Iron to splice Ropes with. Also a piece of Wood which supports one Mast upon the Tressle-trees of another.

To fill.—To brace the Yards so that the wind may strike the Sails on their after Surfaces.

Flukes.—The broad Parts or Palms of the Anchors.

Fore.—That part of the Ship nearest to the Head.

Fore and Aft.—The length-way of the Ship, or in the direction of the Keel.

Fore Castle.—A short Deck in the fore part of the Ship.

Forging a-head.—Forced a-head by the Wind.

Foul Hawse.—When the Cables are twisted.

To Founder.—To sink.

Full and by.—See close-hauled.

Furling.—Making fast the Sails to the Yards by the Gaskets.

Gaff.—A Spar or Yard to which the Mizen of a Ship or the Mainsail of a Brig or Cutter is bent.

Gang-way.—A Platform reaching from the Quarter Deck to the Fore-castle on each side. Also the place where persons enter the Ship.

Gasket.—A piece of Plait to fasten the Sails to the Yard.

Girt.—A Ship is girted when her Cables are too tight, which prevents her swinging.

Goose Neck.—An iron Hook at the end of a Boom.

Goose Wings.—The outer extremities of a Main or Foresail when loose, the rest of it being furled.

Goring.—Cutting a Sail obliquely.

Gripe.—A piece of Timber which joins the Keel and the Cutwater.

Griping.—When a ship carries her Helm much to windward.

Gunnel.---The upper part of a Ship's side.

Guy.---A rope to steady a Boom, &c.

Gybing.---When (by the Wind being large) it is necessary to shift the Boom of a fore and aft Sail.

Halliards.---Tackles or Ropes to hoist up the Sails.

To Hand.---The same as to furl.

Hatch-way.---A square Hole in the Deck, which communicates with the Hold or another Deck.

To Haul.--To Pull.

To Hail.---To call out to another Ship.

A Clear Hawse.---When the Cables are not twisted.

A Foul Hawse.---When the Cables lie across, or are twisted.

Hawse Holes.---The Holes through which the Cables pass.

Hawser.---A small Cable.

To Heel.---To incline to one side.

The Helm.---A wooden Bar put through the Head of a Rudder—also called a *Tiller.*

To Hitch.---To make fast.

The Hold.—The lower apartment of a Ship where the provisions and goods are stowed.

To Haul Home.—To pull the Clew of a Sail, &c. as far as it will go.

Horse.—A Rope made fast to the Yard, on which the Men stand.

Hull.—The body of a Ship.

Jewel Blocks.—Blocks at the Topsail Yard Arms, for the Topmast Studding Sail Halliards.

Jigger.—A purchase used in Merchant Ships to hold on the Cable.

Junk.—Pieces of old Cable, out of which Mats, Gaskets, &c. are made.

Jury Masts.—Temporary Masts, stepped when the others are carried or shot away.

Keckling.—Old Rope passed round the Cable at short distances.

Kink.—A twist or turn in a Rope.

To Labour.—To pitch and roll heavily.

Land-fall.—Discovering the Land.

Larboard.—The left Side.

Launch ho!—To let go the top Rope when the Topmast is fidded.

Leeward.---That point towards which the Wind blows.

Lee-lurch.—When the Ship rolls to leeward.

Lee-way.—The lateral movement of a Ship to leeward.

Lee Tide.—When the Wind and Tide are the same Way.

Lizard.—A small piece of Rope with a Thimble, spliced into a larger one.

Looming.—The appearance of a distant Object such as a Ship, the Land, &c.

Lubber.—A Sailor who does not know his duty.

Luff.—A direction to the Steer's-man to put the Helm to leeward.

Luff Tackle.—A large Tackle, consisting of a double and a single Block.

Lying to.—See to bring to.

To Man the Yards.—To send Men upon them.

Messenger.—A Rope attached to the Cable, to heave up the Anchor by.

Mizen.—The aftermost Sail in a Ship.

To Moor.—To secure a Ship by more than one Cable.

Moorings.—The place where a Vessel is moored. Also Anchors with Chains and Bridles laid in Rivers for Men of War to ride by.

Neap Tides.—Those Tides which happen when the Moon is in her Quarters, and are not so high as the Spring Tides.

Neaped.—A Ship is said to be neaped when she is left on Shore by these Tides, and must wait for the next Spring Tides.

To Near the Land.—To approach the Shore.

No Near.—A direction to the Helm's-man to put the Helm a little a-weather, to keep the Sails full. To let her come no nearer to the Wind.

Nippers.—Plaiting or Selvages to bind the Cable to the Messenger.

Off and On.—Coming near the Land on one Tack, and leaving it on the other.

Offing.—Out to Sea---from the Land.

Orlop Deck.—The lowest Deck in the Ship, lying on the beams of the Hold. The place where the Cables are coiled, and where other Stores are kept.

Overboard.—Out of the Ship.

Overhauling.—To haul a fall of Rope through a Block till it is slack. Also examining a Ship, &c.

Painter.—A Rope by which a Boat is made fast.

To Pass.—To hand anything from one to another; or to place a Rope or Lashing round a Yard, &c.

To pay.—To rub Tar, Pitch, &c. on any thing with a Brush.

To pay off.—To make a Ship's Head recede from the Wind by backing the Head Sails, &c.

To peak up.—To raise the after end of a Gaff.

Plying.—Turning to windward.

Pooping.—A Ship is said to be pooped, when she is struck by a heavy Sea, on the Stern or Quarter.

Port.—To the left side. This term is used to the Helm's-man to put the Helm to the left, instead of the word "*larboard,*"—to make a distinction from the affinity of sound in the word *starboard.*

Preventer.—Any thing for temporary security; as, a Preventer Brace, &c.

Quarter.—That part of a Ship's side between the Main Chains and the Stern.

Racking a Fall.—Seizing the parts of a Tackle-fall together by cross turns.

Rake.—The projection of a Ship at the Stem and Stern, beyond the extent of the Keel—also the inclination of a Ship's Masts either forward or aft from a perpendicular Line.

Range of Cable.—A sufficient length hauled up, to permit the Anchor to drop to the bottom.

To rattle down the Shrouds.—To fix the Ratlings on them.

To reef.—To reduce a Sail, by tying it round the Yard with points.

To reeve.—To put a Rope through a Block, &c.

To ride.—To be held by the Cable. To "ride easy," is when a Ship does not labour much. To "ride hard," is when the Ship pitches with violence.

To rig.—To fit the Rigging to the Masts.

To right.—A Ship is said to right when she ris-

es to her upright position, after being laid down by a violent squall.

To right the Helm.—To put it a-midships, or in its fore and aft position, parallel to the Keel.

To round in.—To haul in a Brace, &c. which is not very tight.

To rouse in.—To haul in the slack part of the Cable.

To run down.—When one Ship sinks another by running over her.

To scud.—To sail before the Wind in a storm.

To scuttle a ship.—To make holes in her bottom to sink her.

To serve.—To wind any thing round a Cable or rope, to prevent its being chafed.

To seize.—To make fast or bind.

To sheer.—To go in and out, and not in a direct course.

To ship.—To put any thing on board.—To "*ship a Sea,*" when the Sea breaks into the Ship.

To shiver.—To make the Sails shake.

The Slack of a Rope, &c.—That part which hangs loose.

To slip a Cable.—To let it run out to the end.

To slue.—To turn any thing about.

To sound.—To find the bottom by a leaden Plummet.

To take a Spell.—To be in turn on duty at the Lead, the Pump, &c.

To spill.—To take the Wind out of the Sails by the Braces, &c. in order to reef or hand them.

To splice.—To join two ropes together, by uniting the Strands.

Spoondrift.—A continued flying of the Spray and Waves over the Surface of the Sea.

To spring a Mast.—To crack or split it.

A Spring.—A Rope made fast to the Cable at the Bow, and taken in abaft, in order to expose the Ship's side to any direction.

Spring Tides.—The highest Tides at the Full and Change of the Moon.

To stand on.—To keep in the Course.

To stand by.—To be ready.

Starboard.—The right side.

To steer.—To manage a Ship by the movement of the Helm.

To stopper the Cable.—To keep it from running out, by fastening short Ropes to it, called *Stoppers.*

Strand.—One of the Divisions of a Rope.

Stranded.—When one of the Divisions is broken. Also when a Ship is run on Shore so that she cannot be got off, she is said to be Stranded.

To Stretch.—To stand on different Tacks under a press of Sail.

To Strike.—To beat against the bottom. Also to

lower the Flag in token of submission. Lowering the Topmasts is commonly termed *striking* them.

To surge the Messenger.—To slack it suddenly.

To sway.—To hoist up the Yards and Topmasts.

To swing.—To turn a Ship from one side of her Anchor to the other, at the change of the Tide.

To tack.—To turn a Ship by the Sails and Rudder against the wind.

Taught.—A corruption of Tight.

Taunt.—Long, Lofty.

Tending.—The movement of a Vessel in swinging at Anchor.

Tier.—The place where Cables are coiled.

Traverse.—To sail on different Courses. When a rope runs freely through a Thimble, &c. it is said to traverse.

Trying.—Laying to in a Gale of Wind under a small Sail.

Turning to Windward.—Tacking.

Twice-laid Stuff.—Rope made from the Yarns of a Cable, &c. which has been half worn.

To veer and haul.—To pull a Rope and then slacken it.

To unbend.—To cast loose.

To unmoor.—To reduce a Ship to a single Anchor, after riding by two.

To unreeve.—To pull a Rope out of a Block.

To unrig.—To deprive a Ship of her Rigging.

To unship.—To take any thing from the place in which it was fixed.

Waist of a Ship.—The part between the Main and Fore Drifts—also a term sometimes used for the spare or waste Anchor, from its being stowed near the Fore Drift, or Fore Part of the Waist.

Wake.—The Track left by the Ship on the Water which she has passed over.

Wales.—See Bends.

To ware.—To turn a Ship round from the Wind.

To warp.—To move a Ship by Hawsers, &c.

Watch.—A division of the Ship's company who keep the Deck for a certain time. One is called *starboard*, and the other the *larboard Watch.*

Water-logged.—The state of a leaky Ship when she is so full of Water as to be heavy and unmanageable.

Way of a Ship.—Her progress through the Water.

To weather a Ship.—To get to windward of her.

A weather Tide.—A Tide or Stream which runs to windward.

Weather-beaten.—Any thing worn or damaged by bad weather.

To weigh.—To heave the Anchor out of the Ground.

To whip.—To bind the end of a Rope with Yarn,

to prevent its untwisting—also to hoist any thing by a Rope which is reeved through a single Block.

Wind's Eye.—That point from which the wind blows in a direct Line.

Between Wind and Water.—That part of the Ship's bottom which is just at the surface of the Water, or what is called the *Water Line.*

To wind a Boat, &c.—To turn it round from its original Position.

Wind-rode.—When the Ship is kept a-stern, &c. of her Anchor solely by the Wind.

To Windward.—Towards that point from whence the Wind blows.

To work to Windward.—To make a progress against the Wind by *Tacking.*

MISCELLANEOUS ARTICLES.

1. *Boatswain.*

This officer holds a station in the Ship of the greatest possible utility. To all other inferior officers a specified duty is assigned, but with the Boatswain it is otherwise, and consequently his vigilance should ever be on the alert, and his eyes should be every where. He ought for example to be a thorough seaman, and a good rigger, he should be active of limb, quick of sight, and ready in the exercise of his mental faculties, but all these qualifications will fall short of their due effect, unless he be possessed of good temper and be of sober habits. Although the Boatswain is to consider himself a day officer, he should bear in mind, that at night he is subject to the call of the Lieutenant of the Watch. The Boatswain will be required to inspect every morning the standing and running rigging, and report their state to the Officer of the Watch. Should repairs be needed, or new rope required, he is to inform the first Lieutenant immediately afterwards.

2. *Squaring Yards.* (*Hints.*)

Simple as may seem the process of Squaring Yards, it is nevertheless a piece of duty, which requires a considerable degree of precision. And this precision can never be obtained, without a knowledge of the principle upon which the yards should be squared.

A Boatswain, ignorant of this principle, will generally proceed thus; he first Bowses taut the lower Trusses, squares the yards by the Braces, and quite regardless of the distance of the Topsail Yards from their respective Caps, or looking to see if the yards are amidships, directs the Chief Boatswain's Mates to take his station on the Jib Boom end, whilst he himself proceeds in the Boat ahead of the ship, to square the Yards by the Lifts. Should the foreyard be required to be topped to Starboard, the Boatswain will top away upon that yard Arm, until by chance he discovers he has topped it too high; to remedy this eyesore, he then sings out "Foreyard to Port," and Tops until he raises the Larboard Yard Arm as high as the Starboard. Producing by this a system of topping and never settling a most unsightly bow in the yard. He then squares the Foretopsail yard, by the bowed foreyard, and of course treats the fore Topsail yard to a bit of a bend likewise. He then takes the Main yard in hand, which though probably square by

the Lifts, can no longer look so in his eye, because the yard arms are not made to cock up like those of the foreyard. "Main Yard to Starboard," he sings out with an audible voice, the Lift is topped several feet to Starboard, and then to Port, until the yard assumes the desired Cock the Boatswain has in his eye. In squaring the Loftier yards by the Lifts, Boatswains seldom take the precaution of placing hands to attend the Top Gallant Braces. It should be remembered, that the topping of the Lifts, alter and disturb the square position of the yards by the Braces,—these may appear minute matters, but unless they be strictly observed, yards never can be properly squared.

Hints. Before squaring yards the Boatswain is recommended to see that the Masts and particularly the lofty spars are upright and all in one. It frequently happens that after the Boatswain has squared all the yards fore and aft, he detects an awkward inclination in one of the Top Gallant Masts; he nevertheless returns on board, and reports to the senior Lieutenant, yards squared and ropes taut, but afterwards desires the Captain of the Top to get a pull of the Starboard or Larboard Top Gallant Breast Back stay, forgetting that this very pull affects the Top Gallant Lifts, and consequently alters the position of the yards. The first thing after the masts are all in one, or upright as you choose to term it, is

to get your yards exactly amidships by your Rolling Tackles, and then get them snugly trussed to the mast and square them by the braces.

Note. All yards above the Lower yards, ought to be the depth of the cap, above the cap, before you attempt to square it by either Lifts, or Braces. When squaring yards you ought to be very particular not to bow your yards up, nor yet to let the yard arms droop down, but be very particular that your yards lay perfectly parallel, for it looks bad to see a ship's yards bow up, and it looks still worse, to see them droop down. In squaring your Top Gallant yards, you ought to be very particular in attending the braces, when you are topping on your Top Gallant Lifts. When you top on either of your Lifts, you ought to slack the brace at the same time, and let a careful hand look out for the yard, to see that it is square by the braces. It not unfrequently happens that after the Boatswain makes his report to the Senior Lieutenant or the officer of the watch, that "Everything is well and in order aloft," Shirts, Trowsers, and often scrubbed Hammocks, are seen from other ships, suspended before the heel of the Topmast, or in positions purposely sought, to avoid the eye of the Officer of the deck, or first Lieutenant.

3. *Turning the Hands up.* (*Hints.*)

In turning the Hands up or calling the Crew to the performance of their duties, the Boatswain too often indulges in piercing pipes, and drawling tones of superfluous length. Boatswains have a singular propensity to demonstrate the soundness of their lungs, by an endless protraction of a note on their piercing pipes—they should not be so fond of supplying the deficiency of Sea birds.

This is not the worst feature in their taste, for when at last they utter the required summons, they give it forth in tones so drawling, that the first words are often forgotten before the last words are out.

NOTE. *A-l-l H-a-n-d-s a-b-o-u-t S-h-i-p.*—This lengthy summons, and a longer winded whistle, and each pipe and phrase three times repeated by the Boatswain and his mates, the ship may be ashore before the leader of the band is convinced how dearly he has "Paid for the Whistle."

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4. *Inspections,* (*Morn ing and Evening.*) *Hints.*

In the morning the Boatswain will be required to inspect as early as possible the state and condition of the standing and running rigging, and to report the result of his examination to the officer of the morn-

ing watch. He should be particularly careful to see that the Ratlines of the rigging are properly secure, that the Topsail sheet service is not chafed, and that all the quarter and Paunch Matts are properly placed.

Evening. The Boatswain should inspect at evening quarters all the Rigging Stoppers, and necessary gear required upon the occasion of clearing for action, so, that in the event of being surprised by an enemy at night, such gear may be placed at hand for immediate use—he should also see that the Toggles, fitted to the lower and topsail Braces, be securely seized to their respective parts.

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5. *Inspection of Stowed Anchors.* (*Hints.*)

In boisterous weather and particularly if the ship be labouring or lurching heavily, the Boatswain should inspect the several Anchors, and see that they be securely stowed. In small vessels whose Anchors in a heavy sea are constantly buried under water it is necessary to take the precaution of passing Preventer Stocks and Shank lashings. The quarter boats should be also inspected, and the Boatswain should report to the officer of the watch the result of such inspection.

6. *Setting up the rigging at Sea.* (*Hints.*)

Whenever it is required to set up the lower shrouds at sea, the Topmast Shrouds should be all let go, this practice is recommended upon the presumption that the Lower rigging will not be cast loose, or set up on the occasion of a swell, or that the Ship be rolling or pitching. It has been well observed that by letting go two Topmast Shrouds at a time, an uneven strain has been brought upon the futtock, which prevents the Shrouds of the lower rigging being equally drawn down. Upon all occasions of setting up the Lower rigging at sea it is always advisable to have ready prepared as many Luffs as possible, so that two shrouds may be set up at a time, and that there may be no delay in shifting the Tackles from Shroud to Shroud. When the lower rigging is up, the futtock plates should be beaten down to the top, and the Shrouds set tautly up by means of tackles ready hooked to their respective Laniards. The method of employing the Spanish Windlass for the purpose of setting up these Shrouds is not to be recommended. It occupies too much time and often creates unnecessary delay before the topmast rigging can be set up. In staying the Topmasts the Boatswain is not recommended to bouse too far forward the heads of the mast, and he should recollect that the Angle formed by the main Topmast stay with

the Fore Top, is considerably greater than that of the Foretop Mast with the Bowsprit, and consequently that the lever of the former is more powerful than that of the latter.

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7. *Inspection of Boats.* (*Hints.*)

Every evening after sunset the Boatswain will be required to inspect the Boats on the Booms, to see that they be perfectly clear, and that their slings be severally hooked in readiness for hoisting out. In Tropical climates it is strongly recommended to uncover the boats after the sun has set, in order that they may benefit by the dew and air. Each cover should be made up and placed in the Bow of the Boat.

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8. *Slacking the Jib Stay in bad weather.* (*Hints.*)

The Jib stay is always set up as taut as a harpstring, consequently, when it comes on to blow, both the spray of the sea, and the rain, tend to tauten it more, in pitching too it must assist to spring the Boom, work the Bowsprit, and cause unnecessary strain upon the rope itself. Whenever it blows so fresh that the Jib

is not likely to be set, the Jib stay should be slacked. If it be required subsequently to setting the sail, nothing can be easier than to set the stay up, while the Jib is loosing,—bear this in mind.

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9. *Clearing for Action.* (*Hints.*)

The Boatswain should see that the rigging stoppers should be placed on the Poop, Quarter deck and Forecastle abreast of their respective shrouds, that the Topsail sheets be severally stoppered, the Top sail yards securely slung, and that preventer Braces be attached to the Lower and Topsail yards. Should time permit of the precaution, the fore and main runners, fore and main Tackles, and a proper proportion of stout Stuffs should be lighted on the Booms ready at hand, and whips ready rove to whip the runners to their respective pendants; the mast head pendants should be previously lashed abaft the mast head. For the purpose of, and on this occasion, when every second of time that can be saved is of the first moment, it is strongly recommended to fit the runners with stout salvages and toggles. Compared to lashing, the method of toggling the runnner becomes a mere momentary operation. Some ships previously to going into action, have lashed their runners, taken them forward and set them up, and have

also boused up their fore and main Tackles, on each side, the propriety of this practice becomes a matter of question, inasmuch as the runners and Tackles are more likely to be shot away when aloft, than when lying low, bighted along upon the Booms.

The Boom cover should also be taken off, and all the minor Lashings of the Spare Spars cast off, for it may be necessary, even in the middle of an action, to have recourse to a spare Spar to lash up and down the Lower mast. A coil of stretched rope and a ball of Spun Yarn, should be sent aloft and placed in each Top.

NOTE. It is said that Paul Jones, perceiving the main mast of his ship totter, in a severely contested action, whipt the spare Jib Boom up and down, the Mast, converting it into a fish, and securing the two spars together by means of long nippers passed on the bight and hove taut by Handspikes, Spanish Windlass fashion.

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10. *Caution in getting in the Bowsprit.* (*Hints.*)

In getting in the Bowsprit, care must be taken that the Main purchase be overhauled down abaft the Bumpkins, for should the purchase fall be passed before and under the Bumpkin it would be impossible to lift the Bowsprit higher. The Spar

must necessarily be lowered again into the water, the purchase untoggled and shifted abaft the Bumpkin, and in fact all the work must be done over again. (bear this in mind.)

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11. *Stopping out Top Gallant Yard ropes.* (*Hints.*)

The practice of permitting the Topmen to stop the Top Gallant Yard ropes out at their own convenience, and consequently at unstated periods, is at variance with that order and regularity which should ever characterize the duties and discipline of a vessel of war.

In well regulated ships, the officer of the watch following the movements of the Senior Officers, directs the Boatswain or his mates to pipe "Out yard ropes," if tripping lines are tolerated the yard rope and tripping line men should lie out together, by pursuing this system, the yards will be kept square, and will not (as is of constant occurrence) be seen for an hour and a half before sunset topping in different directions. The same rule should be observed when placing on whips for Hammock Girtlines, or Clothes lines.

12. *Preventer Braces.*

It is desirable to establish a general rule that when the Topsails are treble reefed, the Preventer Braces are to be placed on the Yards, and that the relieving tackles in the Gunroom be placed at hand ready for use.

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13. *Reeving Running Rigging.*

In reeving running rigging the Boatswain is not recommended to cut and reeve, but on the contrary to reeve and cut. However correct the "Rigging List" may appear there will be always found a difference of a few fathoms in rope, and so it happens that the difference invariably errs on the wrong side, the allowance being said to be shorter than the measurement,—per Rope.

Note. It were much to be desired that the running rigging, previously to reeving, should be stretched at the Capstan. The old practice of taking the end through the Coil, will in some measure relieve the rope of many of its kinks, but taking the mere turns out of a rope is not sufficient to facilitate its run through the block. Such ropes as Topsail Sheets, Top Gallant Sheets, after Braces, and Jib and Staysail Haliards should be all stretched before they are

rove in their respective Blocks. Moreover, if there be any time more than another, that a vessel will require her ropes to run freely, it is upon the occasion of her first leaving port, with a green and undisciplined crew.

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14. *Topsail Tyes.*

Topsail Tyes are now rove in some ships sufficiently long to send the Yards down with, and when not wanted for that purpose, the surplus ends pertaining to the standing parts secured to the Mast head. In some ships a strop and thimble are fitted under the rigging, or a score cut in the heel of the Topgallant mast, for the purpose of reeving through the standing parts of the Tye, which is secured Breeching fashion by two strong seizings, and then stopped down the Topmast rigging. In shifting yards this method will be found to save much time and trouble. The surplus end will also answer to sling the Topsail yard with, when going into action.

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15. *Blacking the Rigging.* (*Hints.*)

In blacking the rigging the first precaution that should be taken by the Boatswain is to cover with

old Canvass or Hammocks the lower Mast Heads, and particularly the Caps. The Blacking should be put on hot.

Thin Tar with a certain portion of Lamblack, hot Salt water, whiskey and a little Litharge mixed together, make an admirable mixture for blacking the rigging. It is not recommended to blacken the Royal and Top Gallant rigging aloft--this rigging may be previously blackened and triced up to dry.

☞ See composition for Blacking.

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16. *Top Gallant Mast Ropes.*

For expedition, the Mast rope rove upon the bight, with lizards taken through the Royal sheave must be preferred to the old manner of fidding Masts by the double operation of two Mast ropes—namely, the long and the short. If delay is desired; or in other words people prefer going the longest way to work, the short mast rope must be put in requisition. The mast rope, however, rove upon the bight with lizards, is better calculated for harbour practice than for sea service. The Mast rope which is here recommended as applicable to every purpose may be fitted as follows. The Rope is rove as usual, stopped to the Top Gallant mast head and Royal sheave hole, leaving a

long end over the upper stop to hitch to the Bolt in the Cap before cutting the stops. To prevent the ropes from slipping, rack both parts together above the sheave hole in the heel of the mast.

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17. *Fore and Main Buntlines.*

The Buntlines of the Courses are frequently found to jamb aloft, and when rove on the bight and led forward constantly to become Cable laid. Buntlines will be found to lead fairer and to haul the sails higher up by fitting them after the following method. In the fore part of the Top between the Trusseltrees cut two holes, into these holes insert leaden pipes backstay fall fashion. Hook to the foremost Bolt on each side of the Lower Cap a block through which each Buntline leg is to be rove, take each through the holes cut in the Top, and pass them down before all, and toggle them to the foot of the sail, the hauling part to be led aft through the Lubber's hole, and a block turned in at a proper distance to allow the after leg to act the part of a pendant. Through this block a whip purchase is rove, by this method the Buntlines will be always kept clear, and they will be found upon letting go the whips, to overhaul themselves. In Port, when the ship is moored, the Buntline blocks with the ropes rove may be unhooked from the Bolts

in the Cap and placed in the Top immediately over the holes, through which the foremost legs are rove in.

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18. *Futtock Shrouds.*

In all vessels of war the Futtock Shrouds are too long. Ships whose lower yards are slung high and brace sharply up have their futtock shrouds considerably shorter than the established length.

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19. *Tops and half Tops.*

Many Seamen affect to disapprove of half Tops, asserting that two halves can never be so well secured as one whole, this is mere prejudice, for practical purposes a half top must be always preferred.

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20. *Striking Topmasts.*

The absence of forethought, or a little practical precaution on the part of the Boatswain and Petty Officers, is sometimes the cause of this operation being one of no little labour, when the hands are turned up to strike Topmasts, the Laniards of the after

Backstays and Topmast rigging should be severally slacked, whilst the Jib Stay, fore topmast staysail Haliards, Topsail haliards, Topsail Lifts, Reef Tackles and Top Gallant sheets ought to be well overhauled, steady hands should also be placed to attend the spring and standing stays.

When blowing hard head to wind, Topmasts constantly bend in the cap, from the circumstance of letting go and overhauling too much of the stays.

Should there be any unusual strain on the Top tackle pendants, it were well to "stand fast" the falls for a few seconds, in order that the people aloft may examine the vicinity of the Trussletrees, for the most minute rope jambed between the Trussletrees and the Mast, may produce sufficient strain to carry away the Top Tackle falls if not the pendants. This precaution is more particularly directed during periods of striking Topmasts in the dark. When the Masts are struck they should be kept on the right slew, and their heels securely lashed, in the event of the Ship parting, or it becomes necessary to set close reefed Topsails with the Mast down. The practice of Sheep shanking Backstays is not recommended, the Backstays may be set up through the medium of good Luff Tackles, and by such means the mast may be rendered sufficiently secure to support the strain of a close reefed Topsail.

21. *Swaying up Topmast.*

In performing this heavy operation every care should be taken to overhaul well, and to see that such of the standing and running rigging are perfectly clear which are calculated to impede the ascent of the masts. The Topsail Lifts, Topsail Tyes, Reef Tackles, Jib and Staysail Halyards should be well overhauled below and aloft, and the Laniards of the Topmast rigging and Backstays be got ready for setting up, the moment the mast is fidded and stayed. The Forecastle men forward should have Luffs lead along the Bowsprit, and Tackles up and down the Foremast, ready for staying th e Fore and Main Topmasts. No Topmasts should be fidded by a single Top tackle pendant. It is true that small vessels are not allowed a second Pendant, but such ships should reeve a hawser through the Dead sheave for the purpose of acting the part of a preventer in the event of the Top Tackle fall parting. The same precaution should be taken with respect to the position of the Cross Trees over head as has been already mentioned under the head of rigging Topmasts.

NOTE. Such Ships should be prepared with stoppers, with two tails and a Toggle, so as to clap on the Top Tackle Pendants about a foot abaft and under the Top Block hooked to the Cap. Topmasts ascend comparatively easy until the Fid hole becomes

within six inches of the Trusseltrees, then a heavy strain is brought upon the Pendants and particularly upon the falls.

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22. *Unmooring.*

It frequently occurs in unmooring vessels of War, that the veering cable is not sufficiently veered. In weighing the first Anchor a considerable strain has been felt at the Capstan in consequence of the ship not being permitted to bring the Cable up and down. It is recommended to veer 3 or 4 fathoms after the Cable is said to be up and down, this can do no harm, it will put the whole strain of the Ship on the Anchor, that is, weighing, and thereby facilitate tripping it.

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23. *Reef Lines to the Topsails.*

Few ships in the service are fitted with these Lines. In some ships they are attached. In reefing Topsails when blowing fresh and particularly when steering a course, or going large, Reef lines assist materially to spill the sail, and enable the men on the yards to get hold of the points, which are difficult to reach when the Canvass is bellying to the breeze.

Reef lines are thus fitted. Take a piece of small rope, splice one end into an eyelet hole into the head

of the sail, seize it around the neck of one of the first reef Points, on the foreside of the sail in a straight line with the eyelet hole, leaving enough slack to prevent the sail girting, then seize it under to the second, then the third reef, splice an eye in the end, and seize it to the neck of a close reef point. In large ships there should be three reef lines, on each yard arm, in small vessels two will be sufficient.

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24. *Reefing Courses.*

To execute this service with security as well as celerity, the reef earings should be formed of rope sufficiently strong to bear being boused out by the Boom Jiggers, by this method the inner turns of small rope may be passed with facility.

The outer Earing should be led through a block or cheek fitted for the purpose, this earing it must be remembered, is not to be considered as a substitute for the reef pendant, it should also be hooked and hauled out by a separate Tackle. It is the general cutom now, to fit all reef earings on the bight, and pass on both ends.

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25. *Top Gallant Masts struck.*

When Top Gallant masts are struck, care should

be taken that a small mat be placed between the Topmast and the heel of the Top Gallant masts, proper heel lashings should also be fitted for the purpose of securing the latter.

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26. *Keeping a clear Anchor.*

That part of seamanship which relates to the method of tending a ship to the tide, or in other words, of keeping the Cable clear of the Anchor may not be inaptly termed the blind branch, of the mariner's art, the Buoy floating on the surface being the only possible guide that the seaman possesses, to point to the position of the Anchor hidden under water.

From being little understood, and by young officers it is seldom put in practice, the art of keeping a clear anchor, is by many considered a difficult task, but, were Lieutenants to give more attention to the matter, and to place less dependence on the Master or Pilot, they would soon attain every necessary knowledge to meet the most difficult tide case.

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27. *Anchor turning in the Ground.*

In order to ensure the certainty of the Anchor turning in the ground with the tending or swinging

of the ship, it is recommended (whenever it is possible) to resort to this practice: To shoot the ship on the same side of her Anchor at each change of tide, for if the Anchor should not turn in the ground, the Cable will get foul, either about the stock or the upper fluke, and trip it out of the ground.—Remember this.

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28. *To tend to a weather Tide.*

Let it be supposed that a ship is riding at single anchor upon a Lee tide, with the wind in same direction of the tide, and that it be required upon the tide setting to windward to tend the Ship clear of the Anchor. To effect this, as soon as the ship begins to feel the turn of the weather tide, and that the vessel brings the wind broad on the weather bow, the head sails should be hoisted and the Lee sheets hauled aft, in order to shoot the ship from her Anchor on a taut Cable, the Helm must be put A Lee, and kept in that position until the tide sets the ship over to windward of her Cable, and the Buoy appearing on the same side with the Helm. If from light winds the Buoy bears nearly abeam, her head sails may be hauled down, but if the breeze be strong and it causes the ship to shoot in a direction nearly end on with that of the Cable, bringing the Buoy on her quarter, it will be necessary to keep the Fore top-

mast Staysail set in order to check the vessel should she be disposed to break her shear against the action of her helm, or be inclined to drop to windward, and "go over" her anchor in a broadside or lateral direction.

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29. *A Man Overboard.*

If the Ship be going free, and particularly if fast through the water, it is recommended to bring too with the head-yards aback, for it is obvious that if the Main yard be left square, the Ship will be longer coming too, will shoot farther, increase the distance from the man, and add materially to the delay of succour. It will however require judgment, especially if blowing fresh, to be careful and right the Helm in time, or the Ship will fly too, too much, gain sternway, and risk the boat in lowering down.

The best authority recommends, that if possible, the Ship should not only be hove aback when a man falls overboard, but she ought to be brought round on the other tack, of course sail ought to be shortened in Stays, and the Main yard kept square. This plan implies the ship being on a wind, or from the position of having the wind not above two points abaft the Beam. The great merit of such a method of proceeding is that if the evolution succeeds, the Ship

when round will drift down towards the man, and although there may be some small risk in lowering the Boat in stays from the ship, having at one period Sternway, there will in fact be little time lost, if the boat be not lowered until the Ship be well round, and the sternway at an end. There is more mischief done generally by lowering the boat too soon than by waiting until the fittest moment arrives for doing it coolly. And it cannot be too often repeated, that almost the whole depends upon the self-possession of the Officer of the Deck.

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30. *Hailing Aloft.*

Hailing Aloft in well regulated Ships is much repressed by the Boatswain, for bluster is a general indication of but little work or the truth of the adage, "All noise and no work."

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31. *Jib Stay and Haliards.*

For various reasons it is advisable to dispense with the Cheek Blocks which are usually fitted to the fore Top Mast head for the purpose of reeving the above two ropes, together with the fore Topmast staysail Haliards. In the first place, if the foretopmast be

sprung or carried away in chase, and that it be required to shift the mast with all possible speed, considerable time is taken up in removing and replacing cheek blocks at the Mast head. But independently of these reasons, the Stay and Haliards should be rove under the Mast head, if only to keep them clear of the foot of the Topgallant Sail.

NOTE. In some ships, the Jib and Fore Topmast Staysail Haliards are rove through ginns fitted for the purpose. Ginns are however not supplied in all ships, but you can always fit fiddle blocks under the eyes of your rigging, your Jib and Staysail Haliards reeve in the upper sheave, and the Topsail Buntlines in the lower ones.

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32. *Proportions for Cables.*

The Sheet and Bower Cable 1 inch in circumference for every 2 feet of beam. The Stream Cable and Messenger $\frac{2}{3}$ of the Sheet or Bower, Chain Cables are frequently used for Bowers, an allowance is made of $\frac{1}{8}$ of an inch for the diameter of the wire of the Links, for every inch of circumference of the Hemp Cables, the same rule applies in all cases where Iron rigging is substituted for Hemp.

NOTE. Cable yarns are spun $\frac{2}{5}$ longer than the Cable for which they are intended. The yarns for

120 fathoms of Cable must be 200 fathoms long, for a shroud laid rope the yarns are $\frac{1}{3}$ longer, i. e. 90 for 60 fathoms.

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33. *Proportions for Anchors.*

For the Sheet and Bower Anchors, take $\frac{2}{3}$ the number of feet which the ship draws with all her stores, &c., on board, and add it to the breadth of beam, and allow one cwt. for every foot.

The stream Anchor $\frac{1}{3}$ of the Sheet or Bower.

For ships smaller than Frigates an allowance of 500 cwt. every 100 Tons burden should be made for Sheet and Bower Anchors.

In Stocking an Anchor, add together the length of the Shank and half the length of the ring, for the length of the stock.

The stock is as many inches in thickness in the middle as the shank is long in feet, and is tapered to half that size at the end.

In puddening an Anchor ring, cut the length 3 times the diameter of the Ring.

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34. *What length is necessary to form a Clinch.*

In bending Cables, the length of rope necessary

to form a Clinch is equal to the length of the Shank of the Anchor.

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35. *To splice an old Cable to a new one.*

Take the old one to a rope walk, unlay the strands, and splice them to the strands of the new one with long splices, after which lay up the latter. It can be done in another way, but it requires a good and neat marlinespike sailor to do it.

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36. *To send up Top Gallant Yards.*

Call all hands up Top Gallant Yards, reeve the yard rope through the Jack block, which send aloft and hook to the Top Gallant Tye. Man the Top Gallant Haliards and trice up the Jack Block, Man the yard rope, sway out of the chains, when the yards are steady aloft, men in the Tops and on the Topsail yards, bear the Top Gallant yards clear, the Lower Lift is then overhauled down, and when the upper yard arm is above the Topmast Crosstrees, "Avast Swaying," while the men in the Crosstrees slip off the Grummets, and put on the upper Lifts and Braces, while hands in the Topmast rigging, rig the lower yard arm, man the Lower lifts and braces, sway

higher and when the slings come above the Top-mast Cap, take a turn with the parrel lashing, attend the yards and sway across, slacking the upper lifts, and bousing upon the lower one, parrel the yard and square it by the Lifts and Braces, let go the Top Gallant Haliards, trice down the Jack Block, hook the Tye, send the yard rope in the Top, bend the sheets and Clewlines, bowlines and buntlines, send aloft Royal Studding Sail booms and reeve the gear.

Note. Royal yards are sent aloft in the same manner, except that they have no Jack Blocks, the yard rope reeves through the sheave in the Royal Mast Head. (Note. Jack blocks are not used at all now-a-days in the heaviest of ships for Top Gallant yards.)

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37. *To keep the Hawser clear when moored.*

When it is nearly slack water, cant her with the Helm the right way, and if necessary, make use of Jib Spanker and yards.

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38. *To tend to Windward Single Anchor.*

When the tide slacks, sheer her with the Helm,

run up the Jib and Foretopmast Staysail, with weather sheets aft, when canted the right way the lee sheets may be hauled aft and the yards filled, thus setting her abreast to a taut Cable. When the Buoy is on the Lee quarter, brace the head yards to the wind, and fill the after ones, when the tide swings her head around, so as to shake the sails, furl and stow them.

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39. *To tend to Leeward.*

As the tide slackens sheer her to the same side of the Buoy on which she came to windward, and fill the yards, which will set her end on, over the Cable, she will now by the effect of the wind, bring her stem over the Cable, and bring the Buoy on her weather quarter, put the Helm "a weather," and she will shoot ahead, tautening the Cable by shearing her head from the wind. When the wind gets a little aft the beam hoist the Jib to prevent the Cable from drawing her head to wind. Let her lay in this position until she falls off. When the head sails shake, haul down and stow them.

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40. *To back the ship.*

As the tide slacks, shear her to windward, sheet

home and set the mizen Topsail, thus she will back round to leeward, as soon as the tide sets up, clew up and furl the mizen Topsail.

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41. *To break the Shear.*

When tending to the tide, and the ship comes over her Anchor, she may break her shear by canting her stern the wrong way, when this is the case, put the helm a-weather, run the Jib up, fill the Head yards and the after yards, kept too. Every thing is now arranged to bring her round again, when she must be managed as before.

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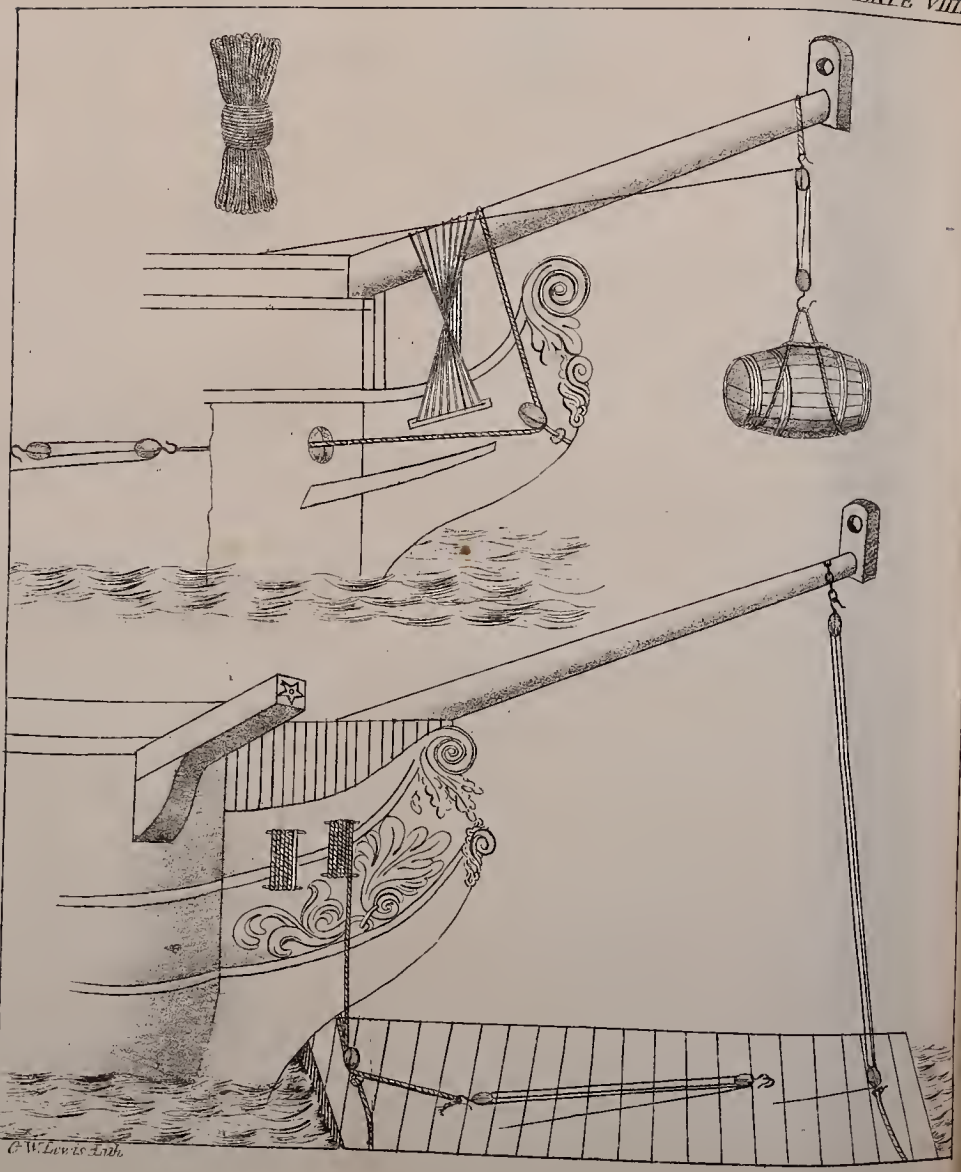
42. *Strip Ship.*

Begin aloft and go down regularly, sending down, that first which went aloft by a reverse operation. Commence with the Top Gallant and royal rigging, and rig in the flying Jib Boom; next send down Topsail and Lower yards, Topmast Caps; unrig the Topmasts, get in the Jib boom and Spritsail yards, get off Lower Caps, Tops and rigging, unrig the Bowsprit and unrig all Gaffs, Booms, and Davits.

43. *A Note on Gammoning the Bowsprit.*

The better way to gammon the Bowsprit in a large ship, is to get a Caulker's Stage under the Bows, fore and aft under the Bowsprit, secure one end snug to the stern, then get a stout tackle from the extreme end of the Bowsprit, overhaul down and sling the outer end of the stage. Hook on your Tackle to the slings, lead your fall down on the stage, send the men down and bouse well taut so as to get the weight of the stage as much as possible on the Bowsprit. Now your stage being secured, you can proceed to Gammon your Bowsprit. Get two stout Luff Tackles on the Stage and a viol block, then get a span around the inner end of the stage to hook your viol block to, having your viol hooked, clinch your gammoning round your Bowsprit, with a running clinch or a running eye, jam your turn well round the Bowsprit, then reeve down through the gammoning hole up over the Bowsprit, then pass your end down through the Scuttle on to the stage, reeve it through the Viol Blocks, on the Stage, clap on your Luffs and bouse away, leading your fall fore and aft the stage.

NOTE. Leading your fall in this way, has a tendency to lift up the inner end of the stage, and of course your pulling down and the weight of the stage on the gammoning must certainly bring the Bowsprit snug down in its bed and set your gammoning up



C. W. Lewis Lith.

very taut, having got your first turn taut, rack it well, pass another, and so on until you fill up your Gammoning Hole. Gammon your last turn under all parts of the gammoning on the opposite side of the Bowsprit, from the way you have passed your gammoning.

When you are setting up your gammoning, two men ought to attend with commanders to beat it solid round the Bowsprit. When they are setting up, some people use a great deal of Tar and Slush on a gammoning, but the less the better. A piece of good leather under your gammoning is much better than tarred parcelling, and when your gammoning is passed, turn your leather over aft, and nail it down to the Bowsprit. Your Gammoning ought to be strapped with large strands in the room of rope, it being much better and softer to the Gammoning, and all well covered to protect it from the weather—if you use parcelling, let it be dry and new.

A TABLE

Showing the length of the first warp of standing rigging.

	Guns.	Fore					Main					Mizen				
		Shrouds.	T. M. Shrouds.	T. M. B. Stay.	T. G. Shrouds.	T. G. B. Stay.	Shrouds.	T. M. Shrouds.	T. M. B. Stay.	T. G. Shrouds.	T. G. B. Stays.	Shrouds.	T. M. Shrouds.	T. M. B. Stay.	T. G. Shrouds.	T. G. B. Stay.
		ft. in	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
With 3 Decks	100	62 0	55.6	116.0	82 0	1 40.0	71.0	60.0	128.0	88.0	150.0	55.0	43.0	95.0	63.0	114.0
	98	61.0	52 0	109.0	76.0	132.0	68.0	58.0	122.0	85.0	148.9	51.0	41.0	88.0	59.0	106.0
	80	55.0	50.0	105 0	73.10	126.0	62.0	56.0	114.0	82.0	139.0	48.0	40.0	82.0	57.0	105.0
With 2 Decks.	80	66.0	60.0	123.0	86.0	150.0	69.0	65.0	132.0	95.6	160.6	59.6	42.0	96.0	60.0	117.0
	74	65.0	55 6	118.0	80.0	143.0	74 0	59.0	129 0	87.0	158.0	60.0	42.0	97.0	60 0	117.0
	64	55.0	47.0	101.0	70.0	127.0	61.0	52.0	113.0	76.0	137.0	50.0	38.0	85.6	54.0	99.0
	50	50.0	44 6	93.0	64.0	114.0	57.0	48.0	102.0	73.0	126.0	45.0	36.0	78 0	48 0	93.0
	44	46.0	41.0	89.0	60.0	108.0	54.0	46.6	100.0	69 0	123.0	43.0	36.0	78.0	48.0	87.0
With 1 Deck.	38	54.0	40.6	92.0	62.0	109.0	58.0	46.3	102.3	68.0	123.0	50.0	36.0	78 3	47.0	95.0
	36	53.0	42.0	93.0	62.0	110.0	60.0	49.6	102.0	72.0	126.0	47 0	37.6	79.6	55.0	96.0
	32	48.0	39.0	85.6	58.0	104.0	55.0	45.0	96.9	66.0	118.0	46.6	34.6	75.0	47.6	93.0
	28	45.0	38.0	82 6	56.0	100.0	52.9	43.0	92.0	63.0	122.0	44.6	32.0	72.0	45.0	90.0
	24	42.0	36.0	78.0	53.0	96.0	47.0	39.6	86.0	60.0	105.0	43.0	30.0	69.0	42.0	87.0
	20	40.0	35.0	75.0	51.0	89.0	45.0	38.6	81.0	57.0	98.0	40.0	27.0	66.0	39.0	81.0
		38.0	30.0	66.0	44.0	80.0	42.0	33.6	72.0	49.0	87.6	35.6	24.0	57.0	"	"
Brig.		31.6	26.6	56.6	42.0	72.0	37.6	29.6	66.0	45.0	84.0	"	"	"	"	"

45. & 46. *A Cordage Table of feet and fathoms.*

ft.	fs	ft.	ft.	fs.	ft.	ft.	fs.	ft.	ft.	fs.	ft.	ft.	fs.	ft.	ft.	fs.	ft.
30	5	"	185	30	5	340	56	4	495	82	3	650	108	2	805	134	1
35	5	5	190	31	4	345	57	3	500	83	2	655	109	1	810	135	"
40	6	4	195	32	3	350	58	2	505	84	1	660	110	"	815	135	5
45	7	3	200	33	2	355	59	1	510	85	"	665	110	5	820	136	4
50	8	2	205	34	1	360	60	"	515	85	5	670	111	4	825	137	3
55	9	1	210	35	"	365	60	5	520	86	4	675	112	3	830	138	2
60	10	"	215	35	5	370	61	4	525	87	3	680	113	2	835	139	1
65	10	5	220	36	4	375	62	3	530	88	2	685	114	1	840	140	"
70	11	4	225	37	3	380	63	2	535	89	1	690	115	"	845	140	5
75	12	3	230	38	2	385	64	1	540	90	"	695	115	5	850	141	4
80	13	2	235	39	1	390	65	"	545	90	5	700	116	4	855	142	3
85	14	1	240	40	"	395	65	5	550	91	4	705	117	3	860	143	2
90	15	"	245	40	5	400	66	4	555	92	3	710	118	2	865	144	1
95	15	5	250	41	4	405	67	3	560	93	2	715	119	1	970	145	"
100	16	4	255	42	3	410	68	2	565	94	1	720	120	"	975	145	5
105	17	3	260	43	2	415	69	1	570	95	"	725	120	5	880	146	4
110	18	2	265	44	1	420	70	"	575	95	5	730	121	4	885	147	3
115	19	1	270	45	"	425	70	5	580	96	4	735	122	3	890	148	2
120	20	"	275	45	5	430	71	4	585	97	3	740	123	2	895	149	1
125	20	5	280	46	4	435	72	3	590	98	2	745	124	1	900	150	"
130	21	4	285	47	3	440	73	2	595	99	1	750	125	"			
135	22	3	290	48	2	445	74	1	600	100	"	755	125	5			
140	23	2	295	49	1	450	75	"	605	100	5	760	126	4			
145	24	1	300	50	"	455	75	5	610	101	4	765	127	3			
150	25	"	305	50	5	460	76	4	615	102	3	770	128	2			
155	25	5	310	51	4	465	77	3	620	103	2	775	129	1			
160	26	4	315	52	3	470	78	2	625	104	1	780	130	"			
165	27	3	320	53	2	475	79	1	630	105	"	785	130	5			
170	28	2	325	54	1	480	80	"	635	105	5	790	131	4			
175	29	1	330	55	"	485	80	5	640	106	4	795	132	3			
180	30	"	335	55	5	490	81	4	645	107	3	800	133	2			

47. *Weight of Cables of* 120 *fathoms from* 3 *to* 24 *inches.*

In.	lbs.	in.	lbs.	in.	lbs.	in.	lbs.	in.	lbs.	in.	lbs.	in	lbs.	in.	lbs.
3	252	6	1008	9	2268	12	4032	15	6328	18	9072	21	12348	24	16128
3½	336	6½	1176	9½	2520	12½	4368	15½	6720	18½	9520	21½	12936	25	17500
4	448	7	1340	10	2800	13	4732	16	7168	19	10108	22	13452		
4½	560	7½	1568	10½	3080	13½	5056	16½	7616	19½	10640	22½	14168		
5	700	8	1792	11	3388	14	5480	17	8092	20	11200	23	14840		
5½	840	8½	2016	11½	3696	14½	5880	17½	8568	20½	11760	23½	15456		

48. *How many fathoms make* 112 *pounds.*

Size in inches.	fms.	feet	in.	Size in inches.	fms.	feet	in.	Size in inches.	fms.	ft.	in.	Size in inches.	fs.	ft.	in.
1	486	'	'	4½	24	'	'	8	7	3	6	11½	3	4	1
1¼	313	3	'	4¾	21	3	'	8¼	7	'	8	11¾	3	3	3
1½	216	3	'	5	19	3	'	8½	6	4	3	12	3	2	3
1¾	159	3	'	5¼	17	4	'	8¾	6	2	1	12¼	3	2	1
2	124	3	'	5½	16	1	'	9	6	'	'	12½	3	2	'
2¼	96	2	'	5¾	14	4	'	9¼	5	4	'	12¾	3	1	8
2½	77	3	'	6	13	3	'	9½	5	2	'	13	2	5	3
2¾	65	4	'	6¼	12	2	'	9¾	5	'	'	13¼	2	4	9
3	54	'	'	6½	11	3	'	10	4	5	'	13½	2	4	'
3¼	45	5	2	6¾	10	4	'	10¼	4	4	1	13¾	2	3	6
3½	39	3	'	7	9	5	'	10½	4	2	1	14	2	2	4
3¾	34	3	9	7¼	9	1	'	10¾	4	1	'				
4	30	1	6	7½	8	4	'	11	4	'	3				
4¼	26	5	'	7¾	8	3	6	11¼	3	5	7				

49. *Proportions of Spars for Merchant Ships.*
Length of Spars.

Main Mast equal to $2\frac{1}{2}$ times the Ship's beam.

Fore " " " $\frac{8}{9}$ths of the Main Mast.

Mizen " " " $\frac{5}{6}$ths " " " "

Bowsprit $\frac{2}{3}$ds of the Main Mast, $\frac{1}{3}$d of which ought to be in board.

Main Topmast $\frac{3}{5}$ths of the Main Mast.

Main Top Gallant Mast $\frac{1}{2}$ of the Main Topmast, exclusive of the pole which is generally $\frac{1}{2}$ the length of the Topgallant Mast or a little longer.

Fore Topmast $\frac{3}{5}$ of the Foremast.

Fore Topgallant Mast $\frac{1}{2}$ the length of the Foretopmast, exclusive of the pole which is $\frac{1}{2}$ the length of the Top Gallant Mast.

Mizen Topmast $\frac{3}{5}$ of the Mizen Mast.

Mizen Top Gallant mast $\frac{1}{2}$ the length of the Mizen Topmast, and the pole $\frac{1}{2}$ the length of the Top Gallant Mast.

Jib Boom the length of the Bowsprit, $\frac{2}{3}$ of which length is rigged without the Bowsprit Cap.

Main yard twice the ship's extreme breadth.

Main Topsail yard $\frac{2}{3}$ of the Main Yard.

Main Top gallant yard $\frac{2}{3}$ Main Topsail Yard.

Fore yard $\frac{7}{8}$ of the Main Yard.

Fore Topsail Yard $\frac{2}{3}$ of the Fore Yard.

Fore Topgallant Yard $\frac{2}{3}$ of the Foretopsail Yard.

Royal Yards $\frac{2}{3}$ the length of the respective Top Gallant Yards.

Cross Jack Yards same length as the Main Topsail Yard.

Mizen Topsail Yard the same length as the Main Top Gallant Yards.

Mizen Top Gallant Yard $\frac{2}{3}$ of the Mizen Topsail Yard.

Spritsail yards $\frac{5}{6}$ of the Fore Topsail Yard.

REMARK.—Some have the Spritsail Yard the length of the Fore Topsail Yard, or nearly so, if it should be much shorter, the Jib sheets will chafe against the Spritsail Braces.

Spanker Boom the length of the Main Top sail yard; it is, however, made sometimes longer, and sometimes shorter according to fancy.

Mizen Gaff $\frac{2}{3}$ of the Spanker Boom, liable to the same variation.

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50. *Thickness of Spars.*

Masts.—It has been customary to allow for every 3 feet of the Main Mast's length, one inch of diameter in the partners, nine-tenths of an inch diameter in the middle between the partners and the extremity of the head, and two thirds under the Hounds, and all other masts in the same proportion, and with these proportions, masts have been usually made. I am, however, of opinion, that $1\frac{1}{4}$ inch diameter in the partners are much better.

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51. *Yards.*

Yards.—For every 4 feet of their length, allow one inch of diameter in the slings, and half that diameter within the squares at the yard arm.

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51. *Distance for placing Lower Masts.*

Fore Mast $\frac{1}{7}$ the length of Spar Deck from forward. Main Mast $2\frac{5}{7}$ as far from the Fore Mast:

NOTE. The above rule is not to be considered

proper for all vessels, their places must be governed by the form of the ship.

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52. *Breadth of Tops.*

Main Top half the ship's beam.
Fore Top $\frac{8}{9}$ of the Main Top.

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54. *Rule for placing Masts in a Ship.*

Take the Ship's length from the after part of the stem to the fore part of the Stern post and divide it into sevenths. Place the foremast one seventh of this length from the Stem, the Mainmast $\frac{3}{7}$ from the Foremast, the Mizen Mast $\frac{2}{7}$ from the Main Mast, and then there will be but one seventh distance between the Mizen Mast and the Stern Post. This rule is for a full built ship, it must therefore be varied when applied to vessels that are sharp, and the stem and stern posts of which rake. The foremast must accordingly be placed farther aft, the Mizen Mast farther forward, and the distance between the Masts proportionably regulated.

55. *To find the tonnage of a vessel by the United States Measurement.*

The length is taken from the fore part of the Main Stern to the after part of the Stern post, the Beam is measured at the extreme breadth to the outside of the Bends, three fifths of this beam is taken off the length before the calculation is made. For a double decked vessel, half the breadth of beam is called the depth of hold, and for a single decked vessel it is the same, except that the hold is measured at the fore part of the Main Hatchway, from the Deck down to the ceiling alongside of the Keelson.

To proceed on in this calculation after all the allowances have been made, the length must be multiplied by the breadth, and that product by the depth of Hold, then divide the last product by 95, and the quotient will give the tonnage required.

Formerly the British divided by 94 for merchant vessels and for ships of war by 100; but I have been informed that they now divide by 100 both for ships of war and merchantmen, which is the reason that they make our ship's tonnage less than we do.

Notes on the tonnage of a vessel.

The Ship Carpenters' tonnage in Philadelphia differs from the United States measurement.

A rule staff is laid under the keel projecting for-

ward, a line is plumbed from the upper part of the fore part of the stern to the rule staff, the keel is measured from its after part to the plumb-line, and including the Rule staff, this is called the length of Keel straight rabbit, the beam is measured from skin to skin on the inside, three fifths of the beam is taken off the keel straight rabbit, for the length, and the calculation in other respects is the same as United States measurement, so that the Carpenters' tonnage in Philadelphia will be less according to the rake of the Stern Post, &c.

The dead rise of a vessel is found by having a staff half the beam from skin to skin, at the extreme breadth which staff is laid even across on the ceiling of the fore part of the Main Hatchway, one of the limber boards being taken up, a line is let fall from the staff to the skin alongside the Keelson, and what it measures, is the vessel's dead rise, so that in order to know how sharp a vessel is, it is customary to ask how much dead rise she has.

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56. *Stepping and raking lower Masts.*

Foremasts of all ships should be stepped plumb or perpendicular to a water line, all Mainmasts should rake one inch to every four feet above deck, and all Mizen Masts should rake one inch to every three feet

above deck. All Bowsprits should be stepped in a direct line drawn from the step of the Mainmast to the lower part of the Bowsprit bed, this line answers for the lower part of the Bowsprit.

It has been the opinion of many Sea Officers that a mast by raking will aid a ship in sailing, but it has been satisfactory proved, that it has the contrary effect; for instance, a ship that has her masts perpendicular only has to bear them in two positions, the one on the step and the other on the side of support, her yards hang free, brace easy, and bear no strain against them, whereas a ship with her masts raking, has to bear them in three positions, the one on the step, one on the side of support, and the other, which is very great, on the fore and aft stays, her yards also hang very heavy against the Mast, which adds also to the fore support, this must cause a great check in the progressive movements in the ship. A sharp vessel or ship, with a lean harping by raking her masts, frequently eases her in pitching, but never adds to her sailing, the wind having less power on her sails, and the principal reasons why a ship's Main and Mizen masts should rake a little from her foremast, is, that by separating the masts in this way, the wind has a better chance of effecting its full power on all the sails, and of striking that part of them that otherwise would be of little or no advantage to the ship.

57. *Method of an estimate of Standing and Running rigging required for the outfit of a 44 Gun Frigate, U. S. Navy.*

	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in	in.
Size	1¼	1½	1¾	2	2¼	2½	2¾	3	3¼	3½	3¾	4	4¼
Length	124	1087	396	1229	700	3793	760	3170	1000	2385	6140	1280	114
Add	376	213	604	71	100	57	90	90	90	90	90	90	90
Total	500	1300	1000	1300	800	3850	350	3260	1090	2475	6230	1370	204

	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
Size	4½	4¾	5	5¼	5½	6	6½	7	8	8½	9	11½	12
Length	885	160	491	"	15	470	182	110	11	98	31	8	8
Add	90	90	90	90	00	50	58	30	89	2	"	"	"
Total	975	250	581	90	135	520	240	140	100	100	31	8	8

58. *Shroud laid Cordage.*

In.	Coils	Fms.	In.	Coils	Fms.		In.	Coils	Fms.
1¼	5	100	4½	7	125	Cathead stoppers,	8		14
1½	13	100		1	100	Wind, "	7½		18
1¾	10	100	4¾	2	125	Shank Painters	7		15
2	13	100	5	4	125	21thread Ratline,			600
2¼	8	100		1	100	18 " "			300
2½	30	100	5¼	1	100	15 " "			500
	1	125	5½	1	135	12 " "			300
2¾	6	100	6	4	100	9 " "			200
	2	125		1	125	6 " Seizings			300
3	29	100	6½	2	120	Hambroline,			300
	3	120	7	1	140	Marline } white			130ths.
3¼	11	100	8	1	100	Houseline } white			130ths.
3½	21	100	8½	1	100	Worming 36 yarn		5	"
	3	135	9	1p	31	" 44 "		2	"
3¾	49	125	11½	1p	8	Assorted		5	"
	1	100	12	1p	8	Spinyarn 5 yarn		8	"
4	11	125				" 4 "		9	"
4¼	2	125				" 3 "		8	"
						" 2 "		7	"

NOTE. Only one warp in a coil, each coil to be tallied with the size, number of fathoms and weight. The tallies to be either leather or Canvass. Each warp to be its full length, clear of fag ends, and proof strands, the proof strands to be six feet clear of fag ends.

59. & 60. 44 *Gun Frigate continued.*

Standing rigging 4 *strand Cable laid.*

	in.	fms.	ft.		in.	fms.	ft.
Main Stay,	17	22	4	Fore Topmast Stay,	8	27	1
Spring "	12½	22	4	" " Spring "	7½	27	1
Fore "	16	15		Main " "	8	26	2
Spring "	12	15	2	" Spring "	7½	19	4
Mizen	9	16	4	Mizen "	5	12	3
				" Spring "	4	12	3

3 *Strand Cable laid Cordage.*

Fore and M. Mast head pendants,	10½	18	4	Main Shrouds,	4	88	2
				Mizen do.	2½	62	2
Fore Shrouds,	10½	199	4	F. T. Gt. Spring Back stays,	4½	92	
Main "	10½	249					
Mizen "	7¼	121		Main do.	4¾	103	2
Inner & Middle Bobstays,	8	23		Mizen do.	3¼	39	
				F. T. Gt. Back stays	4	44	2
Cap Bobstay	7	17		Main do.	4	50	
F. Topmast Shrouds,	6½	83		Mizen do.	2½	38	
Main Shrouds,	6½	111	4	Standing Jib stay,	5	33	
Mizen do.	5	55	2	do. do. Guy,	4	64	
Fore Top Standing B. stay,	8	78		Travelling do.	3½	32	
				Martingale,	4½	59	
Main do.	8	84		Main T. Gt. Stay,	4¾	30	
Mizen do.	5½	33		Fore do.	4¾	35	
F. T. Mast Bt. Backstays,	6½	70		Mizen do.	3½	13	2
				Flying Jib stay,	4	40	
Main do.	6½	78	2	Bumpkin shds. M. fk. shds. Catharpin legs & spank. boom Topping Lifts,	5	62	
Mizen do.	5¼	31	4				
F. T. Gt. Shrouds	4	78	2				
Flying Jib Guys,	3½	39					
" " Martingale,	3¾	36		F. & M. ftk. shds. & Catharpin legs,	6½	95	
Gammoning	6½	80					
Deck Stoppers,	10	31		F. Tks. tapered each,	5½	31	
Buoy ropes,	8	56		2 Main do. do.	4½	32	2
F. & M. Bentick & Bowsprit shrouds	8½	71		2 Fore sheets do.	5	32	2
				2 Main do. do.	5	31	

61. *Fore rigging to be in warps by pairs.*

						fms.	ft.
1st	warp	to	contain		No. 1, 2 & 3,	64	2
2d	"	"	"	"	4, 5, & 6,	66	4
3d	"	"	"	"	7, 8, & 9,	68	4
					fms.	199	4

62. *Main Shrouds in warps by pairs.*

					fms.	ft.
1st	warp to contain,			No. 1, 2, & 3,	72	4
2d	"	"	"	" 4, 5, & 6,	73	4
3d	"	"	"	" 7, 8, 9, & 10,	102	4
				fms.	249	0

63. *Mizen rigging to be in one warp.*

No. 1, 2, 3, 4, 5 & 6, pairs of shrouds, 121 fathoms.

Main Topmast Shrouds to be in one warp.

No. 1, 2, 3, 4, 5, & 6, pairs of shrouds to contain 111 fathoms, 4 feet.

64: 44 *Gun ship continued.*

Fore Topmast Shrouds in one warp.

No. 1, 2, 3, 4, & 5, pairs of Shrouds to contain 83 fathoms.

Mizen Topmast Shrouds to be in one warp.

No. 1, 2, 3 & 4, pair of shrouds to contain 55 fms, 2 feet.

NOTE. All the lower topmast, and topgallant rigging to be made their respective lengths, clear of fag ends and proof strands, and to be tallied with what they are for length, size, number of fathoms, and weight, either on wood or Canvass.

Cat head Stoppers,
Fish Davit Guys,
2 Cat falls,
Shank Painters,
1 Deck Tackle fall,
1 Fish Tackle fall,
1 Catting Tackle fall,
Rudder Pendants,
1 Buoy rope,
Back ropes for Cat and fish,
Bitt Stoppers,
60 lbs sewing & whipping twine
150 lbs of Tallow,
12 bbls Tar,
15 sides sole leather,
45 do. half Tanned do.
25 do. Bellows do.
15 lbs. white line,
8 Galls. Fish Oil,
2000 yards of old Canvass,
4000 Scupper nails,
2000 Pump Tacks,
10 lbs. Clout Nails,
8 lbs. Shoe Thread,
4 Bunches Bristles,
30 fms. 4½ inch White rope,
360 " 1¼ inch signal haliards,
12 awl blades,
12 do. handles,
50 assorted sail needles,
12 Palm Plates,
4 bolts new Canvass,
20 Gallons Tan Oil.

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65. *Estimate of Standing and Running Rigging required for the outfits of a Sloop of War of the 1st Class mounting 22 Guns.*

4 Strand Cable laid Cordage.

	in.	fms		in.	fms.
Main Stay,	12	17½	F Top Main Stays, each	6½	39½
Spring Stay,	9¾	17½	Main Topmast do.	6½	21
Fore Stay,	12	11	" Spring "	4¾	15½
Spring Stay,	10	11	Mizen Topmast "	4¾	9½
Mizen Stay,	7¾	12	" Spring "	3¾	9½

Fore Shrouds by pairs, 8 inches, No. 1, 104 ft. No. 2. 104½ ft. No. 3, 105½ ft. No. 4. 106 ft. No. 5, 109 ft. No. 6, 109½ ft,. to be in one warp. 120 fathoms.

Main Shrouds, 8 inch by pairs, No. 1, 116 ft. No. 2, 116½ ft. No. 3, 118 ft. No. 4, 118½ ft. No. 5, 120 ft., No. 6, 120½ ft. No. 7, 122 ft. to be in two warps.

1st Warp to contain,	No. 1, 2, 3, 4,	78 fms.
2d do.	do. " 5, 6, 7,	60 "
Mast head pendants to 2d Warp, add		17 "
		155 fms.

Mizen Shrouds 5¾ inch by pairs, No. 1, 94 feet, No. 2, 94½ ft., No. 3, 95 ft., No. 4, 95½ ft., No. 5, 95 ft., in one warp to contain 80 fathoms.

Fore Topmast Shrouds 4⅞ inch by pairs, No. 1, 76 ft., No. 2, 76 ft., No. 3, 77 ft. 6 in., No. 4, 77 ft. 10 in. in one warp to contain 52 fathoms.

Fore Top Mast, S. Back Stays 5½ in. by pairs, No. 1, 173 ft. No. 2, 173 ft. 6 in. in one wrap to contain 57 fathoms.

Main Top Mast, S. Back Stays, 5½ in. by pairs, No. 1, 190 ft., No. 2, 190 ft. 6 in. in one warp to contain 63 fms. 2 feet.

Main Topmast Shrouds, 4⅞ inch by pairs, No. 1, 82 ft., No. 2, 83½ ft., No. 3, 84½ ft., No. 4, 85 ft., in one wrap to contain 56 fathoms.

Mizen Topmast S. Backstays, $4\frac{1}{2}$ inch, 148 feet is, 24 fms. 4 feet.

Mizen Topmast Shrouds $3\frac{5}{8}$ inch, No. 1, 64 feet, No. 2, 65, No. 3, 65, in one warp to contain 32 fms, 2 feet.

	size.	fms.	ft.		size	fms.	ft.
F. T. M. Breast Back Stay,	5	28	"	M. T. Gt. B. Back Stay,	$3\frac{1}{2}$	38	"
Main do. 1 pair,	5	31	"	Mizen T. Gt. Stay,	$2\frac{7}{8}$	9	
Mizen do.	$4\frac{1}{2}$	24	4	" Shrouds,	$2\frac{1}{4}$	50	
Standing Jib Stay,	$4\frac{1}{4}$	30		" S. Backstays,	$2\frac{5}{8}$	30	
Guys,	$3\frac{1}{2}$	23		F. & M. Futtock and			
Travelling "	3	22		Catharpin Legs,	$4\frac{7}{8}$	160	
Martingale,	$3\frac{1}{2}$	40		Royal Stays,	2	53	2
F. T. G. Stay,	$4\frac{1}{2}$	28		" Shrouds,	$1\frac{5}{8}$	53	
Flying Jib do.	$3\frac{1}{4}$	36	5	Gammoning,	$5\frac{1}{2}$	32	
Guys,	$2\frac{3}{4}$	28		Bowsprit Shrouds,	6	25	
Martingale,	3	27		Buoy Ropes,	6	26	
F. T. Gt. Shrouds,	$3\frac{1}{4}$	60		Inner Bobstays if 2	$6\frac{1}{2}$	19	2
" " Standing Back Stay,	$3\frac{3}{4}$	70		if only one,	7	9	3
if 2 pair but if only 1	"	35		Cap Bobstay,	$5\frac{1}{2}$	12	
F. T. Gt. B. Backstays,	$3\frac{1}{4}$	35		Bumpkin Shrouds,			
M. T. Gt. Shrouds,	$3\frac{1}{4}$	65		Mizen Futtock Shds.			
" Stay,	$4\frac{1}{8}$	60		Cat harpin legs and			
" Standing B. do.	$3\frac{3}{4}$	76		Spanker bm. Topping Lifts,	$3\frac{7}{8}$	62	
if 2 pair but if only 1	"	38		M. Tacks tapered			
F. Tacks tapered each.	$4\frac{5}{8}$	21	"	each,	$4\frac{1}{4}$	25	
" Sheets,	$4\frac{3}{4}$	23	"	" Sheets,	$4\frac{3}{4}$	22	

NOTE. All the foregoing Cordage to be cable laid and to measure their lengths on the stretch, clear of fag ends and proof strands, each coil and warp to be tallied with what they are for, weight, size, number of fathoms, either on wood or canvass.

66. *Running rigging Shroud laid.*

size	fms	coils.	size	fms.	coils.	size	fms.	coils.
1	362	2	2⅝	110	1	4⅛	79	1
1¼	550	3	2¾	1855	18	4¼	289	3
1½	800	6	3	745	7	4½	80	1
1¾	800	8	3⅛	136	1	4¾	207	2
2	1722	16	3¼	1855	18	5¼	379	4
2⅛	180	1	3½	400	4	6¼	90	1
2¼	844	4	3¾	389	4	6¾	87	1
2½	1685	16	4	261	3			

NOTE All the running rigging to be their full length, clear of fag ends and proof strands, the proof strands to be 6 feet clear of the fag ends. Every coil to be tallied with the weight, size and fathoms, either on wood or Canvass.

	in.	fms.		in.	fms.
Cat head Stoppers,	6	10	Hambroline,	200	lbs.
Wing do.	5	16	Houseline white	85	"
Bitt do.	5	16	Marline,	85	"
Shank Painters,	5	12	Tallow,	150	"
21 thread Ratline,		400	Tar,	7	bls.
18 do. do.		200	Sole leather,	10	side
15 do. do.		250	Half tanned do.	31	"
12 do. do.		200	Bellows, do.	17	
9 do. do.		250	Sewing Twine.	25	lbs.
6 do. do.		600	Whipping do.	15	"
White Line,	10	ths.	Palm plates,	12	"
Old Canvass,	1334	yds.	Worming 24 yarn ,	4	coil
Scupper Nails,	2667		do. 30 do.	1	"
Clout Nails,	6½	ths.	do, Assorted,	3	"
Pump Tacks,	1300		Spinyarn 5 yarn,	5	"
Shoe Thread,	3	ths.	do. 4 do.	5	"
Bristles,	3	bun.	do. 3 do.	9	"
Sail needles ass.	50		do. 2 do.	12	"
Awl Blades,	12		White rope, ¾ inch,	25	fms
" Handles,	12		Signal Haliards,	340	"

67. *Dimensions of the Standing and Running of a Ship of the Line, U. S. Navy.*

	in.	fms.
Bowsprit.		
Gammoning, - -	7	128
Shrouds, Cabled 3 pr.	8½	56
Collar, - - -	9½	15
Bobstays, 3, 12½, 11½ 9 inches.	9 / 11	16 / 15
Collars, - - -		
Man Ropes, - -	5	17
Spritsail Yard.	4	4½
Slings, - - -	4	4½
Lifts, - - -	3½	16
Foot ropes, - -	4	7½
Stirrups, - - -	3	½
Braces, - - -	3½	62
Jib Boom.		
Jib Stay Cabled, -	6½	45
Guy pendants, 3 pairs,	5½	70
Falls, - - -	3	"
Martingale Stay, -	5	53
Pendants, - - -	4¾	
Halyards, - -	3¾	65
Sheets, - - -	4½	70
Downhaul, - -	3¾	42
Outhauler, - -	4¾	
Upper Brails, -	1¾	60
Lower " - -	3	35
Boom foot Ropes, -	4	18
Flying Jib Boom.		
Flying Jib Stay, C'bl'd,	4½	50
Martingale Guy, 2 prs.	4	65
Boom Guys, - -	3½	60
Heel Rope, - -	4½	36
Foot Ropes, - -	3	12
Halyards, - -	3½	55
Sheets, - - -	3¾	40
Downhaul, - -	2¾	35
Jib of Jib Boom.		
Jib of Jib Stay, -	3½	53
Boom Guys, -	3½	47
Heel Rope, - -	2¾	45
Foot Ropes. - -	2¾	9
Halyards, - -	2¾	64
Sheets, - - -	2¾	50
Downhaul, - -	2	40
Martingale Stay, -	3	75
Fore Mast and Yard.		
Shrouds Cabled, 10 prs.	11	245
Lanyards, - -	5½	"
Ratlines, - -	2¼	
Stay Cabled, - -	17	17
Lanyards, - -	6	18
Collar, - - -	9	
Preventer Stay Cabled,	13½	17
Lanyards, - -	5½	
Collar, double, -	7½	
Catharpin legs, -	7	
Bentick Shrouds, -	8½	17½
Lanyards, - -	4¼	
Jeer Pendants, -	10	28
Falls, - - -	5	116
Yard Lifts, - -	6½	100
" Quarter Lifts,	5½	52
" foot Ropes, -	5½	21
" Stirrups, -	4½	24
" Tackle pendants,	7	12
" " falls, -	4½	112
" Braces, -	5½	16
" Preventer, -		83
Fore Yard and Mast.		
Truss pendants, -	7	12

	in.	fms
Truss Falls, - -	3½	40
Slings, - - -	15	9
Lanyard, - -	5	24
Fore Tacks, Cabled,	7	68
" Sheets, "	7	84
" Clew Garnets,	4¼	60
" Reef Pendants,	4¾	8
" Buntline "		
" " Whips,		
" Bowlines, -	4½	66
" " Bridles,		
" Slab Lines, -	3	58
" Bill tricing Lines,	2	40
" Quarter " "	1½	48
" Clew Jiggers,	3½	70
" Lift "	3½	50
" Bunt "	3	34
" In & Out "	3	56
" Storm stay, -		
" " " sail Hal.	3¾	37
" " " sheets,	4½	36
" " Downhaul,	3¾	21
Lower St'g. sail outer Halyards, - -	4¾	100
Lower St'g. sail inner Halyards, - -	3¾	55
Lower Sheets, -	3	26
" Tacks, -	4¾	66
" Boom Top. Lfts.	5½	50
" Whips, -	3¾	40
" After Guys, -	3¾	86
" Forward Guys,	3½	91
St'g. sail Gear Tricing Line, - - -	3½	43

F. Top Mast and Yard

Shrouds Cabled 6 pairs,	7	124
Lanyards - -	3¾	
Ratline - - -	1¾	
Stay Cabled, - -	8½	32
Spring stay, - -	7½	32
Breast Back Stays -	7	76
Standing do. do. 2 prs.	7	79
Futtock Shrouds, -	7	
Ratline, - - -	1¾	

	in.	fms.
Top Rope Pendants,	9	15 / 17
Falls, - - -	5	105
Top Burton pendants,	6	5
" " Falls, -	4	115
Topsail Yard Tyes,	7	42
" Parrel, -	7	
" Foot Ropes,	4¼	16
" yard Stirrups,		
" Braces, -	4½	116
" Lifts, -	6	74
" Rolling Tackle	3¾	20
" Downhaul do.	3¾	47
" Haliards, -	4¼	114
" Sheets *double*,	7	80
" Reef Pendants,	4¾	45
" " Whips,	3¾	74
" Buntlines, -	3¾	74
" Pendants, -	4	28
" Bowlines, -	4½	70
" Bridles, -		
" Clewlines, -	4	95
" Bunt Jiggers,		
" Clew "		
T. M. Staysail Halyds,	3¾	58
" Sheets, -	3¾	52
" Tacks, each -	4	47
" Downhaul, -	3	60
" Boom Braces,	3¼	94
" Brace Pendants,	4½	5
" Tricing Line,	3½	46

F. T. G. Mast & Yard.

Shrouds Cabled, 3 prs.	4½	33
Lanyards, - -	3	
Ratline, - - -		
Stay Cabled, - -	4¾	43
Lanyard, - -		
B. BackStays, Cabled 1 pair,	4	47
Standing Back Stays 1 pair,	4½	49
Lanyards, B. B. S. -	2¼	
Lanyards, S. B. S. -	2¾	
Mast Rope, - -	7	60

	in.	fms.
Pendant, - -	6½	10
Falls, - - -	4	48
Yard Rope, - -	7	60
" Lifts, - -	4¾	60
" Braces, - -	3	122
" Foot Ropes, -	3½	10
" Stirrups, - -		
" Tyes, - -	6½	11
Top Gallant Halyards,	3¾	48
" " Sheets,	4½	80
" " Buntlines,	2¾	74
" " Bowlines,	2¾	98
" " Bridles,		
" " Clewlines,	3	76
Bunt Jigger, - -	2½	12
Sty. Sail Halyards, -	3¾	90
" Sheets, -	2½	28
" Tacks, -	2¾	60
" B. Tricing line,	2¾	32

F. R. Mast and Yard.

Royal Shrouds cabled,	3½	39
Lanyards, -		
" Stay Cabled, -	3	51
Lanyards, -		
" B. Bk. S. cabled,	3	56
Lanyards, -		
" Standing B. Backstays cabled, Lanyards, -	3½	57
Mast Rope, - -	4½	65
" Yard Rope, -	4½	65
" " Lifts, -	3½	58
" " Braces, -	2¾	78
" " Foot Ropes,	3	7½
" " Halyards,	3	24
" " Sheets, -	2¾	42
" " Buntlines,	2¾	44
" " Bowlines,	2¾	55
" " Bridles, -		
" " Clewlines,	2½	42
" " Bunt Jigger,		
" " Tripp. line,	2	32
" " Stdg. Sail Halyards,	2½	66
Stdg. Sail Sheets, -	2½	33
" " " Tacks, -	2½	40
" " " Downhaul,	15th	39

Fore Skysail Mast and Yard.

Trysail Stay, - -	2¼	57
" Back Stay,	2½	63
" Mast Rope,	3	63
" Halyard, -	2	56
" Sheets, -	1¾	54
" Tripping Line,	15th	24

Fore Moon Sail Pole.

Moon sail Halyards 1½	41½	46

Main Mast and Yard.

Shrouds Cabled, 11 prs.	11½	300
Lanyards, -	5½	
Ratline, -	2¼	
Stay Cabled, - -	18	32
Lanyard, -	6	
Collar, -		
Preventer Stay Cabled,	14½	32
Lanyards, -	6	
Collar, -		
Catharpin Legs, -	7	
Bentick Shrouds, -	8½	22
Lanyards, -		
Lashings, -		
Jeer pendants, -	10	30
" Falls, - -	5	132
Stay Tackle Pendants,	7	5
" " Fall, -	4½	50
Yard Lifts, - -	6½	106
" Quarter Lift, -	"	60
" Foot Ropes, -	5½	24
" Tackle Pendants,	7	13
" " Falls, -	3½	120
" " Braces,	5½	120
Preventer "	"	77
Brace Pendants, -		11

	in.	fms.
Yard Truss Pendants,	7	14
Falls, -	3½	44
Slings, -	15	10 5/6
Lanyards,	6	
Main Tacks, Cabled,	7	96
Preventer "	7	12
Sheets, - -	7	96
Clew Garnets, -	4¼	70
Reef Pendants, -	4¾	10
Buntline " - -	3¾	49
" Whips, -	3¾	70
Bowlines, - -	3	24
Runners, -	3¾	10
" Bridles, -		
Leechlines, - -	3	54
Slablines, - -	2	100
Bill Tricing Lines,	2	40
Quarter " -	1½	48
Clew Jiggers, -	3½	80
Lift " -	3½	56
Bunt " -	3	34
In & Out " -	3	70
M. Storm staysail Stay,	8	19
" " Halyards,	4	46
" " Sheets,	4½	42
" " Downhaul,	4¾	44
Main Topmast & Yard.		
Shrouds, Cabled, 7 prs.	7	151
Lanyards, -	3¾	
Ratline, -	1¾	
Stay, Cabled, - -	8½	30
Lanyard, -		
Spring Stay Cabled,		20
Lanyard, -		
B. Backstay, Cab'd, 2 p.	7	90
Standing " 2 p.	7¾	94
Lanyard B. B. S. -	4¼	
" S. B. S. -	4½	
Futtock Shrouds, -	7	
" Ratline, -	1¾	
Top rope pendants,	9	1921
" " Falls, -	5	123
" Burton " -	4	120
" " pendants,	6	6
Topsail Tye, -	7	46
Parrel long leg, -	7	17 ft
" short leg, -	7	9 ft
Topsail Foot Ropes,	4½	17½
" Stirrups, -	4	18
" Yard Braces,	5	88
" " Lifts,	6	80
" " Rol. Tack.		26
" " Down. "	3¾	50
Topsail Halyards,	4½	124
" Sheets, -	7	86
" Reef Pendants,	4¾	54
" " Whips,	3½	80
Buntlines, -	3¾	82
" Pendants,	1¼	32
Bowlines, -	4½	70
" Bridles,	3¾	
Clew lines, -	4	100
Clew Jiggers, -		
Bunt " -		
T.M.Staysail stay, (see Spring stay.)		
" Halyards,	4	58
" Sheets,	3¼	45
" Tacks,	4½	18
" Downhaul,	3¼	42
Middle Staysail stay,	4½	37
" " Halyards,	4	42
" " Sheets,	3½	37
" " Tacks,	3	5
" " Downhaul,	3	38
Studding sail Halyard,	4½	104
" Sheets,	4½	85
" Tacks,	4¾	76
" Downhaul,	3	68
Boom Braces, -	3½	120
" Pendants, -	4½	6
" Tricing Lines-	3½	46
M. T. Gt. M. and Yard.		
T. G. Shrouds cabled 3 pairs,	4¾	38
Lanyards, -	3	
Ratline, - -		
Stay Cabled, - -	5	36

	in.	fms.
Lanyard, -		
Standing Bk. Stays 1 pr	5	56
Lanyards, -		
Mast Pendants, -	7	12
" Falls, - -	4¼	62
Mast Rope, - -	7	67
Yard Rope, - -	7	67
" Lifts, - -	4	64
" Braces, - -	3¼	96
" Foot Ropes, -	3¼	11½
Yard Stirrups, -	2¾	
" Tye, -	6½	12
Top Gallant Halyards,	4	56
" Sheets,	4½	88
" Buntlines,	2¾	80
" Bowlines,	2¾	84
" Bridles,		
" Clewlines,	3	86
Bunt Jigger, -	2½	12
Up. T. G. Stay S. Stay,	3¾	45
" Haliards -	3¼	52
" Sheets, -	2¾	48
" Tacks, -	2¾	5
" Downhaul,	2½	35
L. " Stay S. Stay	4¼	40
" Haliards, -	3	48
" Sheets, -	2½	44
" Tacks, -	2½	5
" Downhaul,	2¼	33
T. Gt. Std. S. Haliards,	3½	108
" " Sheets,	2¾	44
" " Tacks,	2¾	38
" " Tricing Lines, - -	18th	35

M. Royal M. and Yard.

Shrouds cabled, 2 pairs Lanyards, -	3¾	42
Stay, - - -	3¾	31
Breast Back Stay, 1 pr. Lanyards, -	3¾	62
Standing Bk. Stay, 1 pr. Lanyards, -	3¾	64
Mast Rope, - -	4½	70
Yard Rope, - -	4¾	70
" Lifts, - -	3¾	74
" Braces, - -	3	73
" Foot Ropes, -		7½
" Stirrups, -		
" Halyards, -		28
" Sheets, - -	3	52
" Buntlines, -	2¾	50
" Legs,		
" Bowlines, -	2¼	60
" Bridles,		
" Clewlines, -	2¾	48
Bunt Jigger, -		
Tripping Line, -	2	34
R. Staysail Stay, cabl'd	3	43
" Halyards,	2½	57
Royal Staysail Sheets,	1¾	63
" " Tacks,	2½	4
" " Downhaul	2	22
Studg. sail Halyards,	2¾	84
" " Sheets,	1¾	35
" " Tacks,	2	56
" " Downhaul,	15th	43

Main Skysail Mast & Yards.

Skysail Stay; -	2¼	35
" Back Stays,	2¼	61
" Mast Rope,	3½	66
" Halyards,	2	42
" Sheets, -	1¾	56
" Tripping Line,	15th	27

Main Moon Sail Pole.

Moonsail Halyards,	1½	50

Mizen Mast & Cross Jack Yard.

Shrouds Cabled 7 pairs,	7¾	166
Lanyards, -		
Ratline, -	1¾	
Stay Cabled, - -	9	20½

	in.	fms
Lanyard, -		
Collar, - -		
Catharpin Legs, -		
Cross Jack Yard Lifts,	4½	
" Foot Ropes,	3½	18
" Stirrups,		
" Braces, -	3½	68
" Truss pend'ts,	5	41 6
" " Falls.	3	18
" Slings, -	8	
Spanker Boom Topping		
Lifts, - - -	5½	40
" " " Falls,	3½	48
" Guy Pendants,	5	8
" Falls,	3	40
" Sheets,	3½	50
Foot Ropes,	3	
Onthauler,	5	35
Peak Brails,	2¼	38
Throat do.	3¾	40
Middle do.	3	40
Foot do.	3½	40
" Peak Halyards,	4	60
" Throat do.	4	40
" Vang Falls,	3½	53
" Staysail Stay,	5½	18½
" Halyards,	3½	32
" Sheets,	4½	11
" Tack,	2½	10
" Downhaul,	3¼	18
" Brails,	3¾	40
Storm " Stay,		
" " Halyards,	3½	37
" " Sheets,	4¼	11
" " Downhaul,	3	15
" Mizen Peak,		
" " Halyards,	4	60
" Throat do.	4	40
" " Sheets,	4	40
" " Downhaul,	3	38
Ringtail Halyards,		
Tack,	3	40

Mizen Topmast and Yard.

Topmast Shrouds, Cabled 5 pair, -	5½	88
Lanyards, -	3	
Ratline, -	18th	
Stay Cabled, - -	6	13
Preventer do. -	5	13
Breast Back Stay, I p,	5	37
Lanyards, -		
Standing B'k Stays 1 p.	6	39
Lanyards, -		
Futtock Shrouds, -	5½	
Ratline, -	18th	
Top rope Pendants,	6	17
Falls, -	3½	47
Burton Pendants, -	5	4
" Falls, - -	3¾	45
Topsail Yard Tye,	6	17
" Parrells, -	5½	
Foot Ropes,	4	13
Stirrups, -		
Braces, -	3¼	82
Lifts, - -	4¾	30
Rolling Tackles,	3	19
Downhaul do.	3¼	33
Halyards, -	3½	52
Topsail Sheets, -	5	60
Reef Pendants,	3¼	34
" " Whips,	3	70
" Buntline Pendants,	3¾	30
" Whips,	3	60
Bowlines, -	3	51
Clue lines, -	3¼	77
Clue Jiggers,		
T. M. Staysail Stay,		
(see Spring Stay,)		
" " Halyards,	3¼	34
" " Sheets,	3	28
" " Tacks,	2	12
" " Downhauls,	2¼	23
Middle Staysail Stay,	3¾	20
Halyards, -	3¼	30
Sheets, -	3	27
Tacks, -	2¾	7
Downhaul,	2½	26
Gaff Topsail Jack Stay,	1¼	12½
" " Halyards,	3¾	25
" " Tack, -	3	
" " Outhauler,	2½	17
" " Downhaul,	2	26

	in.	fms.
M. T. Gt. M. & Yard.		
Shrouds cabled 3 pairs,	3¼	28
Lanyards, -	1½	
Ratlines, -	12th	
Stay, - - -	3¼	19
Lanyards, -		
B. Back Stay, 1 pair,	3½	44
Lanyards, -		
Stand. Bk. Stay, 1 pair,		45
Lanya r d -		
Mast Pendants, -	5½	9
" Fall, - -	3	45
Mast Rope, - -	6	54
Yard Rope, - -	6	54
" Lifts, - -	4¼	60
" Braces, - -	2½	72
" Foot Ropes, -	3	8
" Stirrups, -		
" Tye, - -	5	9
" Halyards, -	3	40
" Sheets - -	4	53
" Buntlines, -	2¼	30
" Bowlines, -	2¼	70
" " Bridles,		
" Clew lines, -	2½	70
" Bunt Jiggers, -	2½	12
T. Gt. Staysail Stay,	4	23
" Halyards, -	2	38
" Sheets, -	2	37
" Tacks, -	2	4
" Downhaul, -	2	14
T. Gt, Std. sail Halyds.	2¾	75
" " Sheets,	2¼	17
" " Tacks,	2¼	24
" Tricing line.	2¾	27
Mizen R. M. and Yard.		
Shrouds cabled, 2 pair,	3	24
Lanyards, -		
Stay Cabled, - -		22
Breast Backstays 1 pr.	2¾	52
Lanyards, -		
Stand. Bk Stays 1 pair	3	53
Lanyards, -		
Mast Rope, - -	3¾	52
Yard Rope,	3¼	54

	in.	fms.
Yard Lifts, - -	2¾	42
" Braces, - -	2¼	50
" Foot Ropes, -	3	5½
" Stirrups, - -		
" Halyards, -	2½	22
" Sheets, - -	2	34
" Buntlines, -	1¾	22
" Bowlines, -	2	50
" " Bridles,		
Clewlines, - -	2	45
Bunt Jigger, - -	3	25
Tripping Line, -	2	34
Royal Staysail Stay,		33
" Halyards,	2	34
" Sheets,		
" Downhaul,		
R. Stdg Sail Halyards,	18th	92
" Sheets,	15	29
" Tacks,	15	32
" Downhaul.	15	39
Miz. Skysail M. & Yard.		
Skysail Mast Rope, -	2¾	59
" Halyards,	1¾	38
" Sheets, -	18th	37
" Stays, -	1¾	26
Back "	2	59
Moon Sail Pole.		
Moonsail Halyards, -	1½	41
Miseellaneous Rigging.		
Cat falls, - -	6½	108
Fish falls, - -	6	112
Cat head stoppers, -	9	10
Shank Painters, -	8	8
Bitt Stoppers, -	7	13
Ring Stoppers, -	7½	6
Deck Tackle, -	4½	40
Fore Stay Tackles, -	4½	50
Main Stay Tackles,	4½	50
" " Pendants,	7	5
" Boats Falls, -		
Stern Boats Falls. -	4½	54
After Quarter B'ts. -	4	112
Forward Boats Fall,	4	88
Waist Boats Falls,	3	80

66: *An Estimate of the size and quantity of Blocks required to fit out a Ship of the Line.*

		No. in use.	Spare.	Folds.	Size in inch.	Swal. in 10ths.
	Jib of Jib Downhaul.					
1	Jib of Jib Downhaul, - -	1	"	S	6	8
2	Martingale Stay on Boom end, -	2	4	S S	6	9
3	do. do. Tackle, - -	3	1	D	6	8
4	do. do. do. - -	3	1	S S	6	8
5	Guy Tackle, - - -	2	2	D	7	9
6	do. - - -	2	2	S S	7	9
7	Halyards at royal mast head, -	1	"	S	7	9
	Flying Jib Boom.					
8	Martingale Stay on Boom end, -	2	1	S	7	12
9	do. do. Tackle, - -	2	"	S S	6	9
10	do. do. do. - -	2	"	D	6	9
11	Downhaul on Beam on end, -	1	1	S	7	10
12	Fore Royal Bowline do. - -	2	1	S S	6	8
13	Flying Jibstay Tackle, - -	1	"	D	9	9
14	do. do. - -	1	"	S S	9	9
15	Guy Tackle, - - -	2	1	S D	10	10
16	do. - - -	2	1	S S	10	10
17	Sheets in Clew of sail, - -	2	4	S S	9	13
18	Halyards at the F. T. Gallant M. H., B. S.	1	1	S S	7	13
19	Head and Heel ropes, Flying Jib boom,	3	"	S	8	12
	Jib Boom.					
20	Martingale Stay on Boom end, -	2	1	D	11	18
21	do. do. Tackle, - -	2	2	S S	11	11
22	do. do. do. - -	2	"	D	11	11
23	Jib Downhaul, - - -	1	2	S S	8	13
24	Brails on Jib stay, - - -	2	"	S S	6	9
25	do. leading on Boom end, -	2	"	S S	7	9
26	Jib Outhauler, - - -	1	1	S S	11	16
27	F. T. Gallant Bowline on the Boom end,	2	1	S S	7	9

		No. in use	Spare.	Folds.	Size in inch.	Swal. in 10ths
28	Standing Jib Guy Tackle - -	4	1	D	12	12
29	do. do. - -	4	1	S	12	12
30	Travelling Jib Guy Tackle, -	2	1	D	12	11
31	do. do. - -	2	1	S	12	11
32	Jib Stay Tackle, - - -	1	1	D	12	11
33	Jib Stay Tackle, - - -	1	1	S	12	11
34	do. Sheets in clew of Sail, -	2	4	S	13	15
35	Jib boom heel ropes on Cap, -	1	1	S	13	20
36	Heel rope Tackle for Jib Boom, -	1	"	D	12	13
37	do. do. -	1	"	S	12	13
38	Jib Halyards in head of Sail, -	1	2	S	12	14
39	do. T. Mt. Trussle Trees, Iron bound,	1	1	S	13	14
	Bowsprit.					
40	Spritsail Lifts on the Yard Arm, -	2	1	S	12	15
41						
42	do. on Bowsprit,	2	"	S	13	15
43	do. Brace on the Fore Stay,	4	1	S	11	13
44	Fore Top Bowline, - -	2	1	S	12	16
45	Fore Bowline, - - -	2	1	S	13	15
46	Fore Topmast Staysail Downhaul,	1	1	S	8	13
47	do. do. Halyards in head of Sail.	1	1	S	12	16
48	do. do. do. on the F. T. M. Trussle Trees, Iron bound,	1	1	S	13	16
49	do. do. Sheets in clew of sail,	1	1	S	12	15
50	Fore Storm Staysail Stay on the Bowsprit, B. S. - - -	1	"	S	14	28
51	do. do. do. Downhaul,	1	1	S	8	12
52	Fore Staysail Halyards in head of sail,	1	"	S	12	14
53	do. do. on Trussle Trees,	1	"	S	13	14
54	do. do. Sheets in clew of sails,	2	"	S	13	14
	Fore Mast and Yard.					
55	Runners for Topmast, B. S. -	4	2	S	17	30
56	Tackles for do. - -	4	2	D	17	16
57	do. do. - - -	4	2	S	17	16
58	Fore Truss Tackles, - -	2	1	D	10	13
59	do. do. - -	2	1	S	10	13

		No. in use.	Spare.	Folds.	Size in inches.	Swal. in 10ths.
60	Fore Jeer Runner, B. S. - -	2	1	S	22	36
61	do. Tackle, - - -	4	1	D	20	22
62	Leaders for do. - - -	2	1	S	20	22
63	Quarter Blocks on Fore Yard, B. S.	2	1	S	16	23
64	Topsail Sheets on Yard Arm, -	2	2	S	16	23
65	Slablines on Yard, - - -	2	"	S	10	13
66	Clue Garnets on Yard, - -	2	4	S	14	17
67	do. on Clew of Sail, -	2	4	S	12	17
68	Buntlines on Fore Yard, - -	4	2	S	9	13
69	do. under Top, - -	4	1	D	9	13
70	Fore Buntlines, - - -	2	1	Shoe.	[illegible]	13
71	Fore Leechlines on Yard, - -	4	1	S	8	12
72	do. under Top, - -	2	1	D	8	14
73	Fore Leechlines, - - -	2	1	Shoe.	[illegible]	13
74	After do. on Fore Yard, -	2	1	S	8	13
75	do. do. leading under Top,	2	1	D	8	13
76	After Leechlines, - - -	2	1	Shoe.	[illegible]	13
77	Fore Yard Tackle, - -	2	1	Fiddle.	33	17
78	do. do. - -	2	1	S	18	17
79	do. do. Leaders, -	2	"	D	18	17
80	Bill and Quarter Tricing Lines, -	2	"	S	18	17
81	Fore Brail on Yard Arm, -	2	1	S	20	18
82	do. leading on M. Trussle trees,	2	1	S	16	18
83	Preventer Braces on Yard Arms, -	2	"	S	15	16
84	Leading do. on Bowsprit, -	2	"	S	15	16
85	Fore Lifts on Cap span, - -	2	1	D	16	22
86	do. do. on Yard Arm, - -	2	1	S	16	22
87	do. do. on Jigger Tackle, - -	2	1	D	10	11
88	do. do. do. do. - -	2	1	S	10	11
89	Clew Jiggers,- - - -	4	"	S	8	11
90	Bunt Jiggers, - - - -	1	"	D	8	11
91	do. do. - - - -	1	"	S	8	11
92	Fore Reef Tackle on yard, *double scored*	2	"	S	12	18
93	do. do. on Leech of sails,	2	2	S	11	18
94	Bumpkin Blocks Fore Tack, B. S. -	2	1	S	15	23
95	Fore Tacks on Clew of sail, B. S. -	2	2	S	15	23
96	Fore sheet on do. do. B. S. -	2	2	S	15	23
97	Swinging Boom Topping Lifts, -	2	1	S	11	15
98	do. do. do. Whips, -	4	1	S	11	11
99	Pendants for outer Stud. sail Halyds.	2	1	Fiddle.	20	18
100	Outer Stud. sail Halyards, on Boom,	2	1	S	12	18
101	Inner do do. on Yard,	2	1	D	9	13

		No. in use	Spare.	Folds.	Size in inches	Swain ibths.
102	Leading do. do. on Quarter,	2	1	S	9	13
103	Tricing Lines, - - -	2	"	S	9	11
104	Lower Studding sail Downhaul, -	2	1	S	7	10
105	Swinging Boom Brails, - -	2	1	S	11	15
106	do. After Guys, - -	2	1	S	11	15
107	do. Forward do. - -	2	1	S	11	15
108	Leading do. on Spritsail yd. -	4	1	S	12	15
109	Studding sail Tacks, on Boom end, -	1	1	S	11	16
110	Tricing Lines for Std. sail Gear, -	4	"	S	8	11
	Fore Topmast and Yard.					
111	Top Block B. S. iron bound -	2	1	S	22	36
112	Top Tackle, - - - -	4	1	D	20	20
113	Leaders, for do. - - -	2	"	S	20	20
114	Fore Top Burton, - - -	2	1	Fiddle.	20	11
115	do. do. do. - - -	2	1	S	12	11
116	do. do. Runners, - - -	2	"	S	12	17
117	F. T. Mt. B. Backstays, turned in, -	4	1	D	15	14
118	do. do. do. iron bound,	4	1	Tripple.	15	14
119	Travelling Bk. Stays, - -	2	1	D	15	14
120	do. do. do. iron bound, -	2	1	Tripple.	15	14
121	Gin Blocks, Topsail Ties, B. S. -	2	1	S	18	25
122	Topsail ties on yard, B. S. -	2	1	S	19	25
123	Fore Topsail Halliards, (Fly) B. S. -	2	1	D	22	16
124	do. do. do. B. S. -	2	1	S	22	16
125	Leaders for do. B. S. -	2	"	S	22	16
126	Fore Top sail Brace on yard, -	2	1	S	17	17
127	Fore Topsail Brace on Collar of M. Stay,	2	1	S	14	17
128	do. do. under M. Trussle trees,	2	1	S	15	17
129	Reef Tackle and Lifts, B. S. -	2	1	Sister.	24	22
130	Leaders in Fore Top for Topsail Lifts,	2	"	S	12	22
131	Fore Topsail Lift Jiggers, -	2	1	D	10	10
132	do. do. - -	2	1	S	10	10
133	Downhaul Tackles, - -	1	1	D	11	13
134	do. do. - - -	1	1	S	11	13
135	Quarter Blocks on Topsail Yard,	2	1	D	13	17
136	Clewlines in Topsail, - -	2	4	S	12	17
137	Rolling Tackles, - -	1	"	D	11	13
138	do. do. - - -	1	"	S	11	13
139	Fore Topsail Buntline at Mast head,	2	2	S	12	14

		No in use.	Spare.	Folds.	Size in inches	Swal. in 10ths.
140	Fore Topsail Buntline on yard, -	2	"	S	9	14
141	Reef Tackles, - - -	2	4	S	10	18
142	do. on Leach of the sail, - -	2	2	S	10	18
143	Sheets in Clew of Sail, B. S. -	2	4	S	13	23
144	Leech ropes on Topsail tie, -	2	"	S	8	10
145	Fore Topsail Buntline Whips, -	1	"	D	8	12
146	do. do. do. -	1	"	S	8	12
147	Clew Jiggers, - - -	4	"	S	9	12
148	Out Rigger in Fore Top, - -	1	"	D	11	12
149	do. do. - -	1	"	S	11	12
	Fore Top Gallant Mast and Yard.					
150	Span at Cap for Studding Sail Halyards,	2	1	S	13	17
151	Jewell Blocks on Yard Arm, -	2	1	S	11	17
152	Studding Sail Tacks on Boom, -	2	1	S	8	11
153	Boom Brace Pendants, - -	2	"	S	10	11
154	Leaders for Boom braces on Main Rig.	2	1	S	9	11
155	Downhaul for Top Mast Studding Sail,	2	1	S	8	10
156	Boom Jigger in and out, - -	2	1	D	8	10
157	do. do. - -	2	"	S	9	11
158	Leaders for do. in Bunt of Yard, -	2	"	S	9	11
159	Tricing Boom Tackle under Top,	2	1	D	9	11
160	do. do. do. -	2	1	S	9	11
161	Top Gallant Mast Tack, -	1	1	D	13	13
162	do. do. - -	1	1	S	13	13
163	Jigger Tackle for Top Gallant Rigging,	2	"	D	7	9
164	do. do. do. -	2	"	S	7	9
165	Top Gallant breast back Stay, turned in,	2	1	D	11	11
166	do. do. Iron bound,	2	1	D	11	11
167	do. Stay Tackles, -	1	1	D	11	10
168	do. do. - -	1	1	S	11	10
169	Jack Blocks, - - -	1	1	S	14	22
170	Top Gallant Halyards, - -	1	1	D	13	13
171	do. do. - -	1	1	S	13	13
172	do. Braces on Yard Arm,	2	1	S	10	11
173	Leading do. on Main Topmast Stay,	2	1	S	7½	11
174	do. under Trussle Trees, -	2	"	S	7½	11
175	Top Gallant Lifts, - -	2	1	Sister.	18	16
176	do. do. leading in Top, -	2	"	S	9	16
177	do. Lift Jigger, - -	2	"	D	8	10

		No. in use.	Spare.	Folds.	Size in inches	Swal. in 10ths.
178	do. do. - -	2	"	S	8	10
179	Top Block, Iron bound, - -	1	1	S	14	22
180	Top Gallant Sheet on Yard Arm, B. S.	2	2	S	12	9
181	Quarter Blocks, - - -	2	1	D	10	14
182	Top Gallant Buntlines. - -	2	1	S	8½	10
183	Spare Top Gall't. Studding Sail Halyards,	2	1	S	8	12
184	Jewell Blocks, - - -	2	1	S	8½	12
185	Studding Sail Tacks, - -	2	1	S	8	12
186	Tricing Lines, - - -	2	"	S	7	9
	Fore Royal Mast and Yard.					
187	Fore Royal Breast Back Stays, turned in,	2	"	S	8	11
188	do. do. Iron bound,	2	"	S	8	11
189	Stay Tackle, - - -	2	1	S	7	9
190	Leading Royal brace on Top Gallant stay,	2	1	S	6½	10
191	do. do. do. at Mast head,	2	1	S	6½	10
192	Quarter Blocks, - - -	2	1	D	6½	9
193	Royal Buntlines, - - -	1	"	S	6	9
194	Spare do. Studding Sail Halyards,	2	1	S	6	9
195	Jewell Blocks, - - -	2	1	S	6	9
196	Studding Tacks on Boom, -	2	"	S	6	9
	Main Mast and Yard.	4	2	S	17	30
197	Runners for Main Mast, B. S. -	4	2	D	17	16
198	Tackles for do. - -	4	2	S	17	16
199	do. do. - - -	2	1	D	10	13
200	Main Truss Tackles, - -	2	1	S	10	13
201	do. do. - -	"	"	"	"	"
202	Jeer Runners, B. S. - -	2	1	S	22	35
203	Jeer Tackles, - - -	4	1	D	22	24
204	Leaders for do. - - -	2	1	S	22	24
205	Quarter Blocks on Main Yard, B. S.	2	1	S	17	23
206	Topsail Sheets on Yard, B. S. -	2	2	S	17	23
207	Slab Lines on do. - -	2	"	S	10	13
208	Clew Garnets on do. - -	2	4	S	15	17
209	do. in Clew of Sail, -	2	2	S	15	17
210	Buntlines on Main Yard, - -	4	1	S	9	13

		No. in use.	Spare.	Folds.	Size in inches.	Swal. in 10ths.
211	do. under Top, - -	4	1	D	9	13
212	Main Buntlines, - - -	2	1	Shoe.	9	13
213	Leechlines on Yard, - -	4	1	S	9	13
214	do under Top, - -	2	1	S	8	13
215	Main Leechlines, - - -	2	1	Shoe.	9	13
216	After do. on Main Yard, - -	4	1	S	8	13
217	do. under Top, - -	2	1	D	8	13
218	After Leechlines, - - -	2	1	Shoe.	9	13
219	Main Yard Tackle, - -	2	1	Fiddle.	33	17
220	do. do. - - -	2	1	S	18	17
221	do. Leaders, - - -	2	"	S	18	17
222	Bill and Quarter Tricing Lines, -	4	1	S	8	9
223	Main Brace on Yard, - -	2	1	S	22	20
224	Leading Main Braces, - -	2	1	S	22	20
225	Preventer Main Braces on Yard, -	2	"	S	17	17
226	Leading Preventer Main Braces on Yard,	2	"	S	16	17
227	Main Lifts on Cap, (span) -	2	1	D	17	23
228	do. on Yard Arm, - -	2	1	S	17	23
229	Main Jigger Tackle, - -	2	1	D	10	11
230	do. do. - -	2	1	S	10	11
231	Main Clew Tackle, - -	4	"	S	8	11
232	do. Bunt do. - -	1	"	D	8	11
233	do. do. - -	1	"	S	8	11
234	do. Reef Tackle on Yard, D Scored,	2	1	S	12	18
235	do. do. in leech of sail,	2	2	S	11	18
236	Main Tack on Gangway, B. S. -	2	"	S	16	23
237	do. in Clew of sail, B. S. -	2	2	S	16	23
238	Main Sheets in do. B. S. -	2	2	S	16	23
239	Runners for Main Bowline Bridle,	2	"	S	11	13
240	Tackles for do. -	4	"	S	11	13
241	Tricing Lines for Studding sail Gear,	2	"	S	8	11
242	Main Staysail Stay on Foremast, -	1	1	S	14	28
243	Storm Staysail Halyards in Col. of Stay,	1	1	S	14	14
244	do. do. in heavy Sail,	1	1	S	12	14
245	do. do. Downhaul,	1	1	S	12	13
246	do. Sheets, - -	2	"	D	16	13
247	Runner for Jumper on Main Stay, -	1	1	S	9	16
248	Tackle for do. do. -	1	"	D	9	11
249	do. do. do. -	1	"	S	9	11
250	Fore Stay Tackle, - - -	1	1	D	17	17
251	do. do. - - -	1	1	S	17	17
252	Leader for do. - - -	1	"	S	17	17
253	Main Stay Tackle - -	1	1	D	17	17

		No. in use.	Spare.	Folds.	Size in inches.	Swal. in 10ths.
254	Main Stay Tackle, - - -	1	1	S	17	17
255	Leader for do. - - -	1	"	S	17	17
	Main Topmast and Yard.					
256	Top Block, Iron bound, B. S. -	2	1	S	22	36
257	Top Tackle, - - -	4	1	D	22	26
258	Leaders for do. - - -	2	1	S	22	20
259	Main Top Burton, - -	2	1	Fiddle.	20	11
260	do. do. - -	2	1	S	12	11
261	do. Runners, - -	2	"	S	12	18
262	Main T. M. Breast Back Stay turned in,	4	1	D	15	14
263	do. do. Iron bound,	4	1	Tripple.	15	14
264	do. Travelling turned in,	2	"	D	15	14
265	do. do. Iron bound,	2	"	Tripple.	15	14
266	Main Top Mast Stay, B. S. -	1	"	S	15	36
267	do. Spring Stay, B S. -	1	"	S	12	39
268	Gin Block for Topsail Tye, B. S. -	2	2	S	19	27
269	Topsail Tye on Yard, B. S. -	2	2	S	20	27
270	Topsail Halyards, (Fly) B. S. -	2	1	D	24	16
271	do. do. B. S. -	2	1	S	24	16
272	Leader for Topsail Halyards, B. S.	2	"	S	24	16
273	Main Topsail Brace on Yard, -	2	1	S	18	18
274	do. leading on Collar of Mizen Stay,	2	1	S	14	18
275	do. Span on Mizen Mast, -	2	1	S	16	18
276	do. Lifts and Reef Tackles, B. S.	2	1	Sister.	24	23
277	do. Lift Leaders, - -	2	"	S	12	23
278	do. Lift Jiggers, - -	2	1	D	10	10
279	do. Downhaul Tackle, - -	2	1	S	10	10
280	Main Top sail Downhaul Tackle,	1	"	D	11	13
281	Quarter Block on Yard, - -	2	1	D	13	17
282	Clewline in Sail, - - -	2	4	S	11½	17
283	Rolling Tackle, - - -	1	"	D	11	13
284	do. do. - - -	1	"	S	11	13
285	Main Topsail Buntlines, Mast head,	2	2	S	13	14
286	do. do. leading on Yard,	2	"	S	10	14
287	Reef Tackle Whips in Pendants, -	2	2	S	9	13
288	do. in leech of sail, - -	2	2	S	9	13
289	Topsail sheets in Clew of sail, B. S.	2	4	S	13	23
290	Leech Ropes on Topsail Tye, -	2	"	S	8	10
291	Main Topsail Bunt Whips, -	1	1	D	10	12

		No. in use.	Spare.	Folds.	Size in inches.	Swal. in 10ths.
292	do. do. - -	1	1	S	10	12
293	Main Top Bowline in Fore Top -	2	1	S	13	16
294	Clew Jiggers, - - -	4	"	S	9	12
295	Outrigger in Main Top, - -	1	"	D	11	12
296	do. do. - -	1	"	S	11	12
297	Staysail Halyards, at Mast head, iron b'd.	1	1	S	13	14
298	do. in head of Sail,	1	1	S	12	14
299	Staysail Downhaul, - -	1	1	S	8	12
300	do. Brails, - - -	2	1	S	8	10
301	do. Sheets in pendants, -	2	"	S	12	23
302	Middle Staysail Tricing Lines, -	2	"	S	9	17
303	do. Halyards, iron bound,	1	1	S	10	14
304	do. Downhaul, -	1	1	S	8	10
305	Spar for Studding Sail Halyards, -	2	1	S	13	17
306	Jewell Blocks, - - -	2	1	S	11	17
307	Studding Sail Tacks on Boom, -	2	1	S	10	16
308	do. Downhaul, -	2	1	S	8	10
309	Boom Jigger in and out, - -	2	1	D	9	11
310	do. do. - -	2	1	S	9	11
311	Leaders for do. - -	2	"	S	9	11
312	Tricing Boom Jigger, - -	2	1	D	9	11
313	do. do. - -	2	1	S	9	11
	Main Top Gallant Mast and Yard.					
314	Top Block, (*iron bound*) - -	1	1	S	14	22
315	Mast Tackle, - - -	1	1	D	13	13
316	do. do. - - - -	1	1	S	13	13
317	Jigger for Top Gallant rigging, -	2	"	D	7	9
318	do. do. do. do. -	2	"	S	7	9
319	Breast Backstays, turned in, -	2	1	D	11	11
320	do. do. iron bound, -	2	1	D	11	11
321	do. do. Stay tackle, -	1	"	D	12	12
322	do. do. do. -	1	"	S	12	12
323	Jack Block for Top Gallant yard, -	1	1	S	14	22
324	Top Gallant Halyards, - -	1	1	D	14	13
325	do. do. - - -	1	1	S	14	13
326	do. brace on yard, -	2	1	S	11	12
327	Leading do. on Collar of Miz. T. Gt. stay, - - - -	2	"	S	7	12
328	do. do. at Mast Head, -	2	1	S	7	12

		No. in use.	Spare.	Folds	Size in inches.	Swal. in 10ths.
329	Top Gallant Lifts, B. S. -	2	1	Sister.	18	16
330	Leaders for do. - - -	2	"	S	9	16
331	Lift Jigger, - - - -	2	"	D	9	10
332	do. do. - - -	2	"	S	9	10
333	Sheets on Yard arm, B S. - -	2	2	S	13	19
334	Quarter Blocks on Top Gallant Yard,	2	1	D	10	14
335	Top Gallant Buntlines, - -	2	1	S	8	9
336	Leading Main Top Gallant Stay & Bowlines through chock, 1 Chock,					
337	At Fore Top Mast Crosstrees, -					
338	Lower Top Gal't Staysail Tricing Lines,	1	"	S	8	17
339	do. do. Halyards at Mast head,	1	1	S	7	11
340	do. do. Downhaul, -	1	1	S	8	9
341	Upper Top Gallant Staysail Tricing lines,	1	1	S	7½	13
342	do. do. Halyards at Mast head,	1	1	S	8	11
343	do. do. Downhaul, -	1	1	S	6	9
344	Spare Top Gal't Studding Sail Halyards,	2	1	S	8	12
345	Jewel Blocks on Yard Arm, -	2	1	S	½	12
346	Studding Sail Tacks on Boom, -	2	1	S	8	12
347	do. Tricing Lines, -	2	"	S	7	9
	Main Royal Mast and Yard.					
348	Main Royal Backstay, turned in, -	2	1	S	9	11
349	do. do. Iron bound,	2	1	S	9	11
350	do. Stay, - -	2	"	S	8	11
351	do. Brace or Mizen T. Gal't Stay,	2	"	S	7	11
352	do. do. at Mast head, -	2	1	S	7½	11
353	Quarter Block on Yard, - -	2	1	D	7	9
354	Royal Buntlines, - - -	1	"	S	6	9
355	do. Bowlines, - - -	2	"	S	6	8
356	do. Staysail Tricing Line, -	2	1	S	7	11
357	do. do. Downhaul, -	1	1	S	5½	8
358	Spare Royal Studding Sail Halyards,	2	1	S	7	9
359	do. do. Jewel Blocks,	2	1	S	6½	9
360	do. do. Tacks on Boom,	2	"	S	6	9
	Mizen Mast.					
361	Mizen Pendant Tackles, - -	4	"	D	17	16

		No. in use.	Spare	Folds.	Size in inches Swal.	Size in inches in 10ths.
362	Mizen Pendant Tackles, - -	4	"	S	17	16
363	Cross Jack Truss Tackle, - -	1	1	D	9	11
364	do. do. - -	1	1	S	9	11
365	Quarter Block on Cross Jack Yard, B. S.	2	1	S	13	20
366	Topsail Sheets on Yard Arm, B. S.	2	1	S	13	20
367	Cross Jack Brace on yard, -	2	1	S	14	14
368	do. do. Leaders, - -	2	1	S	13	14
369	Spare Cross Jack Lifts, - -	2	1	D	13	18
370	do. do. on Yard, -	2	1	S	13	18
371	Lift Jiggers, - - -	2	1	D	8	8
372	do. - - - -	2	1	S	8	8
373	Mizen Staysail Stay under Miz. Top, B.S.	1	"	S	12	24
374	do. Stay Tackle, -	1	"	D	12	15
375	do. do. - -	1	"	S	12	15
376	Tricing Tackle for Miz. Stay at Miz. mst.	1	"	D	9	10
377	do. do. - -	1	"	S	9	10
378	Staysail Halyards on Collar of Miz. stay,	1	1	S	10	12
379	do. in head of sail, -	1	1	S	12	12
380	Mizen Staysail Downhaul, -	1	1	S	7	11
381	do Brails, - -	2	1	S	7	11
382	Storm Staysail Halyards on Collar of stay,	1	"	S	10	12
383	do. do. in head of sail,	1	"	S	10	12
384	do. Downhaul, -	1	"	S	7	10
	Spanker Boom.					
385	Spanker Topping Lift under Mizen Trussle Trees, B. S. - -	2	1	S	13	27
386	do. Boom Runner, -	2	1	S	12	22
387	do. Topping Lift Tackle,	2	1	D	12	12
388	do. do. do. -	2	1	S	12	12
389	do. Guy do. -	2	1	D	12	12
390	do. do. do. -	2	1	S	12	12
391	Crow foot for Spanker Topping Lifts,	2	"	S	6	8
392	Spanker Sheet, - - -	2	1	D	16	17
	Blocks on Gaff.					
393	Mizen Vangs, - - -	2	2	S	13	12
94	do. Leading on Quarter, -	2	1	S	12	12

		No. in use.	Spare.	Folds.	Size in inches.	Swal. in 10ths.
395	Spanker Peak brails, - -	2	1	S	7	11
396	do. Middle do. - -	2	1	S	10	11
397	do. Throat do. - -	2	2	Tripple.	9	12
398	do. Quarter do. on Gaff, -	2	1	S	8	11
399	Spanker Foot Brails on Gaff, -	2	1	S	8	11
400	Peak Halyards on Gaff, - -	2	1	S	13	14
401	do. do. on Cap, Iron bound,	1	"	D	14	14
402	Throat Halyards on Mast, -	1	"	D	14	14
403	do. on Gaff, - -	1	1	S	14	14
404	Outhauler in Clew of Sail, - -	1	1	S	13	17
	Mizen Top Mast and Yard.					
405	Top Block, Iron bound, B. S. -	2	1	S	17	28
406	do. Tackle, - - -	2	"	D	18	17
407	Rolling do. - - - -	2	"	S	10	
408	do. - - - -	2	"	D	10	
409	Topsail Buntlines at Mast head, -	2	1	Fiddle.	18	11
410	do. on Yard, - -	2	1	S	10	11
411	Mizen Top Runners, - -	2	"	S	10	15
412	Breast Backstays, turned in, -	2	1	D	13	13
413	do. do. Iron bound, -	2	1	D	13	13
414	Mizen Topmast Stay, B. S. -	1	"	S	10	25
415	do Spring do. B. S. -	1	"	S	9	25
416	Gin Blocks Topsail Tye, B. S. -	1	"	S	13	25
417	Topsail Tye on Yard, B. S. -	1	1	S	15	25
418	do. Halyards Fly, - -	1	1	D	16	14
419	do. - - -	1	1	S	16	14
420	do. Leader, - -	1	"	S	16	14
421	Mizen Top Sail Brace on Yard, -	2	"	S	12	13
422	Leading do. - -	2	1	S	12	13
423	Topsail Lifts, - - -	2	1	S	22	17
424	do. do. - - -	2	"	S	9	17
425	do. Jigger, - - -	2	"	D	8	8
426	do. do. - - -	2	"	S	8	8
427	Downhaul Tackles, - -	1	"	D	9	11
428	do. do. - - -	1	"	S	9	11
429	Quarter Blocks on Yard, - -	2	1	D	11	14
430	Clewline in Sail, - - -	2	4	S	9	14
431	Rolling Tackle, - - -	1	"	D	10	12
432	do. do. - - -	1	"	S	10	12

		No. in use.	Spare.	Folds.	Size in inches.	Swal. in 10ths.
433	Topsail Buntlines at Mast head, -	2	1	S	10	11
434	do do. on Yard, -	2	"	S	8	11
435	Reef Tackles, Whips on Pendants,	2	2	S	7 1/2	11
436	do. do. in leech of Sail,	2	2	S	7 1/2	11
437	Topsail Sheets in Clew of Sail, -	2	3	S	11	20
438	Leech Ropes on Topsail Tyes, -	2	"	S	7	9
439	Mizen Topsail Bunt Whips, -	1	"	D	8	10
440	do. do. - -	1	"	S	8	10
441	do. Bowlines, - -	2	1	S	10	11
442	do. Clew Jiggers, -	4	"	S	8	10
443	Out Rigger in Mizen Top, -	1	"	D	10	11
444	do. do. - -	1	"	S	10	11
	Leading Various Rigging on Mizen Mast and Quarter Deck.					
445	Leading Mizen Topsail Clewlines,	2	"	S	11	12
446	do. Buntlines,	2	"	S	11	11
447	do. Reef Tackles,	2	"	S	11	16
448	Top Gallant Sheets, - -	2	"	S	11	17
449	Royal Halyards, - - -	2	"	S	11	11
450	Top Gallant do. - - -	1	"	S	11	10
451	Topmast Staysail do. - -	1	"	S	11	11
452	Peak and Middle brails of Spanker,	2	"	D	9	11
453	Throat do. do. -	2	"	S	9	12
454	Foot and Quarter do. do. -	2	"	D	9	12
455	Mizen Topsail Sheets, - -	2	"	S	11	20
456	Quarter Boats Tackles, - -	4	"	D	13	14
457	do. do. do. - -	4	"	S	13	14
458	Stern dd. do. - -	2	"	D	14	15
459	do. do. do. - -	2	"	S	14	15
460	Leaders for Quarter Boats Tackles,	4	"	S	9	14
461	Leading Blocks on Mizen Fife Rail, D scored, - - - -	10	"	S	9	16
	Miscellaneous Blocks.					
462	Top Girtlines, - - -	4	"	S	17	32
463	Mast head Girtlines F. M. & Miz. mast,	12	"	S	13	13

		No. in use.	Spare.	Folds.	Size in inches.	Swal. in 10ths.
464	Luff Tackle for setting up Lower rigging,	22	"	D	15	14
465	do. do. do. -	22	"	S	15	14
466	Tricing Lines for Luffs on lower Rigging and Stays, - - - -	16	"	S	7	9
467	Stopper Tackles on Fighting Luffs,	20	"	D	13	12
468	Fish Tackle on Davit head D. scored, B.S.	2	1	D	22	22
469	do. on Fish hook Fall, -	2	1	D	18	22
470	do. leading on Davit head, B. S.	4	1	S	22	22
471	do. in Pendants on Gangway,	2	"	S	18	22
472	Tripping line for Fish Hook, -	2	"	S	9	15
473	Davit Guy Tackle forward, -	2	"	D	11	12
474	do. do. - - -	2	"	S	11	12
475	do. do. aft, - -	2	"	D	11	12
476	do. do. - - -	2	"	S	11	12
477	Cat Tackle at Davit head, -	2	"	D	13	15
478	do. Blocks, B. S. Iron bound. -	2	2	Treble.	26	26
479	Leader for do. B. S. - -	2	"	S	18	26
480	Back Rope for do. - - -	2	"	S	9	14
481	Main Yard Whips, - -	2	"	S	16	15
482	do. do. do. for Stay, -	2	"	S	16	15
483	do. do. do. for Swabs, -	4	"	S	7	8
484	Hammock and Clothes Lines, -	24	"	S	10	10
485	Purchase Blocks, B. S. - -	1	"	Treble.	48	36
486	do. do. B. S. - -	2	"	D	48	36
487	Leader on Viol Block, B. S. -	1	"	S	40	36
488	Deck or Winding Tackle, - -	2	"	D	22	22
489	do. do. - - -	2	"	S	22	22
490	Relieving Tackle for Tiller, -	2	1	D	12	12
491	do. do. - -	2	1	S	12	12
492	Blocks for Awnings, - -	6	"	S	7	11
493	Whips for Crowfoot, - -	5	"	S	6	8
494	Tackles for Ridge Ropes, - -	6	"	S	6	8
495	Windsail Halyards, - -	8	"	S	6	8
496	Jigger Tackles, - - -	4	"	D	11	12
497	do. - - - -	4	"	S	11	12
498	do. - - - -	4	"	D	9	10
499	do. - - - -	4	"	S	9	10
	Snatch Blocks.					
1	Snatch Blocks, - - -	2			12	13

		No. in use.	Spare.	Size in inches.	Swal. in 10ths
2	Snatch Block, - - - -	6		14	14
3	do. - - - -	7		16	15
4	do. - - - -	3		18	18
5	do. - - - -	2		20	20
6	do. - - - -	1		22	22
7	do. - - - -	1		24	23
8	do. - - - -	1		26	24
9	do. - - - -	1		28	26
10	do. - - - -	1		30	28
11	do. - - - -	1		32	30
12	do. B. S. - - - -	1		34	32
13	do. B. S. - - - -	1		36	34
14	do. B. S. - - - -	1		40	38
15	do. - - - -	2		11	10
16	do. - - - -	2		10	9
17	do. - - - -	2		9	8
	Dead Eyes.				
1	Cap Bobstay, - - - - -	2	2		12
2	Outer Bowsprit Shrouds, - - -	4	1		10
3	Inner do. - - - -	4	1		10
4	Fore Shrouds, - - - -	22	2		17
5	do. - - - -	20	2		17
6	Bentick Shrouds, - - - -	2	"		12
7	do. - - - -	12	2		11
8	Fore Topmast Shrouds, - - -	12	2		11
9	do. do. - - -	4	1		13
10	do. do. B. Stay, - -	4	1		13
11	do. do. - - -	1	1		10
12	do. Stay, - - - -	1	1		10
13	do. do. - - - -	1	1		10
14	do. Spring Stay, - - -	1	"		10
15	do. do. - - -	2	1		8
16	F. T. Gallant Back Stay, - - -	2	1		8
17	do. do. - - -	2	1		8
18	Fore Royal do. - - -	2	"		6
19	do. do. - - -	2	"		6
20	Main Shrouds, - - - -	22	2		17
21	do. - - - -	24	2		17

		No. in use.	Spare.	Size in inches.
22	Bentick Shrouds,	2	"	12
23	do.	2	"	12
24	Main Topmast Shrouds,	14	2	11
25	do. do.	14	2	11
26	do. Backstay,	4	1	13
27	do. do.	4	1	13
28	do. do.	1	1	10
29	do. Stay,	1	1	10
30	do. do.	1	1	10
31	Main T. Gt. Backstay,	2	1	8
32	do. do.	2	1	8
33	do. Royal,	2	"	6
34	do. do.	2	"	6
35	Mizen Shrouds,	14	2	13
36	do.	16	2	13
37	Mizen Topmast,	10	1	9
38	do.	10	1	9
39	Mizen Backstays,	4	"	11
40	do. do.	4	"	11
41	do. Topgallant Backstay,	2	1	7
42	do. do.	2	1	7
43	Mizen Royal Stay,	2	"	5
44	do. do.	2	"	5

Hearts.

1	Outer Bobstay,	2	1	14
2	Inner do.	2	1	15
3	Upper F. Spring Stay,	1	"	20
4	Lower do.	1	"	24
5	Upper Fore Stay,	1	1	24
6	Lower do.	1	1	28
7	Upper Main Stay,	1	1	28
8	Lower do.	1	"	28
9	Upper Main Spring Stay,	1	1	24
10	Lower do.	1	"	23
11	Preventer Gammoning,	2	"	11

69. *Miscellaneous Articles.*

	No. in use.	Folds.
Leading Trucks for various Rigging on L Shrouds	30	D
do. do. do.	6	S
Serving Mallets, assorted from 6 to 10 inches,	48	
Settling Fids, do. do.	8	
Splicing Fids, do. do.	24	
Commanders, - - - - -	18	
Heavers. - - - - -	24	
Serving Boards, - - - -	36	
Hand Spikes, - - - -	12	
Stand for Coils of spun Yarn, - -	3	
Reels for Stretching, - - - -	2	

70. *Anchors.*

Starboard Bower Anchor, - - -	8627
do. do. - - -	9175
Larboard Bower, - - - -	8427
do. Sheet, - - - -	8700
Stream Anchor, - - - -	2272
No. 1.—Kedge Anchor, - - -	1117
No. 2. do. - - -	800
No. 3. do. - - -	675
No. 4. do. - - -	500
No. 5. do. - - -	410
Boats do. - - -	100
do. do. - - -	125
do. do. - - -	175

71. *Distances from Spar Deck of U. S. Ship North Carolina.*

From Night Heads to Bowsprit Cap, -	53 feet.
do. do. to Jib Boom, - -	91 "
do. do. to Flying Jib Boom, -	109 "
do. do. to Jib of Jib Truck, -	128 "

From Spar Deck to Fore Cap,				-	$77\frac{1}{2}$ "
do.	to F. T. M. Cap,			-	$122\frac{1}{2}$ "
do.	to F. T. Gt. Cap,			-	$145\frac{1}{2}$ "
do.	to F. Cap,			-	$170\frac{1}{2}$ "
do.	to F. Skysail Truck,			-	$187\frac{1}{2}$ "
do.	to Main Cap,			-	90 "
do.	do.	T. M. Cap,		-	141 "
do.	do.	T. Gt. Cap,		-	166 "
do.	do.	Royal Cap,		-	$193\frac{1}{2}$ "
do.	do.	Skysail Truck,		-	$211\frac{1}{2}$ "
do.	do.	Mizen Cap,		-	$75\frac{1}{2}$ "
do.	do.	do.	T. M. Cap,		116 "
do.	do.	do.	T. Gt. Cap,		136 "
do.	do.	do.	Royal Cap,		158 "
do.	do.	do.	Skysail Truck,		173 "
Length on Spar Deck,				-	209 "

72. *Dimensions of the Masts, Spars, &c. of a 3 Decker, a 74, and a Frigate of the 1st Class.*

	3 DECKER.						74						FRIGATE 1ST CLASS.					
	Length.		*Diam.*		*Mast Head.*		*Length.*		*Diam*		*Mast Head.*		*Leng.*		*Diam.*		*Mast Head.*	
	ft.	in.	in.	10th	feet.	inch.	ft.	in.	in.	10th	feet.	inch.	ft.	in.	in.	10th	feet.	inch.
Jib Boom.	63	11	17	6	"	"	55	9	16	4	"	"	55	1	13	8	"	"
Flying Jib Boom,	63	"	7	7	"	"	59	1	11	"	"	"	50	1	9	2	"	"
Jib of Jib Boom,	48	6	7	"	"	"	44	4	"	6	"	"	37	7	5	5	"	"
Spanker Boom,	73	"	14	9	"	"	71	8	14	4	"	"	63	4	12	6	"	"
do. Gaff,	49	"	11	"	"	"	47	10	10	7	"	"	42	3	9	4	"	"
F. T. M. St. S. Booms,	52	"	10	5	"	"	50	4	10	1	"	"	44	6	9	"	"	"
Main T. M. "	58	"	9	7	"	"	56	7	9	5	"	"	50	"	8	5	"	"
Lower Swinging B'ms	65	"	11	7	"	"	56	0	10	6	"	"	56	"	9	4	"	"
T. Gt. St. Sail, "	39	"	6	5	"	"	37	9	6	3	"	"	33	4	5	6	"	"
Main " " "	43	6	7	3	"	"	42	6	7	1	"	"	37	6	6	3	"	"
Mizen " " "	31	"	5	2	"	"	30	4	5	1	"	"	26	10	4	5	"	"
Main Royal " "	27	9	4	7	"	"	27	1	4	6	"	"	23	11	4	"	"	"
Fore " " "	24	8	4	2	"	"	24	4	4	1	"	"	21	4	3	6	"	"
Mizen " " "	19	9	3	3	"	"	17	4	3	3	"	"	17	1	2	9	"	"
Ring Tail Boom,	36	8	7	5	"	"	35	10	7	2	"	"	31	8	6	3	"	"
Main Mast,	130	"	42	8	22	7	124	"	40	"	22	"	105	2	34	6	18	3
Fore Mast,	117	"	38	5	20	4	112	"	36	"	20	"	94	8	31	2	16	5
Mizen Mast,	104	"	28	5	18	1	96	8	20	7	17	"	84	2	23	1	14	7
Main Top Mast,	78	"	24	5	13	"	73		23		12	2	63	2	19	9	10	7
Fore "	70	2	22	2	11	9	68	1	20	7	10	10	56	10	18	"	9	6

Mizen Top Mast,	62	5	17	1	10	5	58	5	16	2	9	9	50	6	14	"	8	5
Main T. Gt. Mast,	39	"	14	7	"	"	36	11	13	8	"	"	31	7	12	"	"	"
Fore "	35	1	13	4	"	"	32	7	12	4	"	"	28	5	10	8	"	"
Mizen "	31	2	10	3	"	"	29	3	9	8	"	"	25	3	8	4	"	"
Main Royal Mast,	30	"	11	1	"	"	28	"	10	1	"	"	24	4	9	"	"	"
Fore "	27	"	10	1	"	"	25	2	9	3	"	"	21	10	8	1	"	"
Mizen "	24	"	7	8	"	"	22	6	7	3	"	"	19	5	6	3	"	"
Main Slid. Gunter M.	50	"	7	4	"	"	46	8	6	7	"	"	44	"	6	"	"	"
Fore "	45	"	6	7	"	"	42	"	6	2	"	"	36	5	5	5	"	"
Mizen "	40	"	5	2	Yard	Arms	36	6	5	1	Yard	Arms	32	4	4	2	Yard	Arms
Main Yard,	110	"	24	5	5	6	107	6	23	"	5	6	94	11	19	9	4	9
Fore Yard,	98	"	22	2	4	10	95	6	20	7	4	10	84	5	18	"	4	3
Cross Jack Yard,	82	6	17	1	8	2	80	8	16	2	8	1	71	3	14	"	7	2
Main T. Sail Yard,	82	6	18	4	6	11	80	8	18	"	6	6	73	3	16	"	5	11
Fore "	73	6	16	4	6	2	71	8	16	"	6	"	63	4	14	1	5	3
Mizen "	58	10	13	1	4	11	57	8	12	9	4	9	50	11	11	3	4	3
Main T. Gt. Yard,	52	6	11	8	2	8	51	4	11	4	2	6	45	4	10	1	2	3
Fore "	46	10	10	4	2	4	45	8	10	2	2	3	40	5	9	"	2	"
Mizen "	37	6	8	4	1	10	36	9	8	2	1	9	32	4	7	2	1	8
Main Royal Yard,	35	"	7	8	1	9	34	3	7	7	1	8	30	3	6	7	1	6
Fore "	31	3	7	"	1	7	30	6	6	8	1	6	27	"	6	"	1	5
Mizen "	35	"	5	6	1	3	24	6	5	5	1	2	21	7	4	8	1	2
Main Skysail Yard,	23	4	5	2	1	2	22	10	5	1	1	1	20	2	4	5	1	"
Fore "	20	10	4	6	1	"	20	4	4	5	1	"	18	"	4	"	"	11
Mizen "	16	8	3	7	"	10	18	4	3	6	"	9	14	5	3	2	"	8
Spritsail Yard	73	6	14	4	7	4	71	8	14	"	"	8	63	4	12	5	6	4
Bowsprit,	85	2	"	"	"	"	75	5	"	"	"	"	66	9	"	"	"	"

74. *Scale of Weights for Cables and Hawsers.*

Size.	fms	wght.	Size.	fms.	wght.	Size.	fms	wght.	Size.	fms.	whgt.
5	120	700	5	100	559	14½	120	5880	14½	100	4900
5½	"	840	5½	"	700	15	"	6300	15	"	5250
6	"	1008	6	"	840	15½	"	6720	15½	"	5600
6½	"	1176	6½	"	1080	16	"	7168	16	"	5974
7	"	1372	7	"	1144	16½	"	7616	16½	"	6347
7½	"	1588	7½	"	1324	17	"	8092	17	"	6744
8	"	1792	8	"	1494	17½	"	8568	17½	"	7140
8½	"	2016	8½	"	1680	18	"	9072	18	"	7560
9	"	2268	9	"	1890	18½	"	9576	18¼	"	7980
9¼	"	2520	9½	"	2100	19	"	10108	19	"	8424
10	"	2800	10	"	2334	19½	"	10640	19½	"	8867
10½	"	3080	10½	"	2567	20	"	11200	20	"	9344
11	"	3418	11	"	2847	20½	"	11760	20½	"	9800
11½	"	3696	11½	"	3080	21	"	12348	21	"	10290
12	"	4032	12	"	3360	21¾	"	12936	21½	"	16780
12½	"	4368	12½	"	3640	22	"	13552	22	"	11277
13	"	4732	13	"	3944	22½	"	14168	22½	"	11807
13½	"	5096	13½	"	4247	23	"	14812	23	"	12344
14	"	5488	14	"	4547	23¼	"	15456	23½	"	12880
						24	"	16128	24	"	13440

RECEIPTS.

75. *For Blacking Ship's Standing Rigging.*

To every Gallon of Tar add two quarts of Fish Oil, and 1 quart Black Varnish.

76. *For Blacking Guns.*

Six pounds Bees Wax, mixed with 1 Gallon of Spirits of Turpentine, one paper of Lampblack mixed well together for 20—24 pounders.

N. B. The Bees wax to be cut fine and dissolved in the Turpentine before mixed with the Lampblack.

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77. *For Blacking Hammock Cloths, Yards, and Bends.*

First scrub the cloth well with Salt Water, and while wet, put on the first coat of priming, which should be well ground, paint with 1½ lbs Bees wax added to each gallon of paint, after the first coat is well dry, put on second mixed as follows, viz :

1 lb Lampblack mixed for paint,
1 do. Red Lead,
1 Gall. Paint Oil,
½ lb. Litharge,
½ oz. Indigo.

Boiled for half an hour, and stirred at intervals. Care should be taken that the composition boils that length of time. After it has cooled a little add one pint of Spirits of Turpentine, apply when warm, and it will dry in a short time with a beautiful gloss, and be perfectly limber. This last mixture has been found very suitable for yards and also the bends, but it must never be used too warm, particularly on Canvass in which case it will lose its gloss, the priming or

first coat is not put on cloths that had been black before.

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78. *Receipt for Making Liquid Blacking.*

4 oz. Ivory black,
5 or 6 Table spoons full of Molasses,
1½ oz. Oil of Vitriol,
1½ do. Sweet oil,
6 Gills of Vinegar,

After mixing the ingredients, together well stirring them frequently, the Blacking will be fit for use.

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79. *For Blacking Guns.*

6 oz. of Lampblack,
3 pints of Spirits Turpen tine,
3 oz. of Litharge,

To be put in, after the Lampblack and Turpentine are well mixed, add 1 oz. of Umber to give it a gloss, and one Gallon bright Varnish.

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80. *Composition for Blacking Guns.*

6 lbs Bees wax cut up fine, then add 7 quarts Spirits Turpentine, let it stand until it is well dis-

solved, then add 1 pound Lamp black, and mix it well together.

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81. *Recipe for making Black Varnish.*

2 lbs Gum Shallach,
2 " of Umber,
1 Gallon Linseed Oil,
¼ lb of Lampblack,

Boiled together for four hours over a slow fire.

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82. *Composition for Blacking Hammock Cloths, No* 1.

Bees wax, - - - -	20 lbs.
Rosin, - - - -	4 do.
Sprits Turpentine, - -	2 Galls.
Paint Oil - - - -	1 do.
Lampblack, - - - -	6 lbs.

Boil them well together and keep it warm while puting on. N. B. To be primed first with lead colored paint.

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83. *Composition for Hammock Cloths, No* 2.

Yellow Ochre, - - -	48 lbs
Black Paint, - - -	8 "

Soap, - - - -	½ lb.
Fresh Water, - - - -	3 pints.

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84. *Another Receipt for Hammock Cloths, No.* 3.

Black Paint, - - - -	½ lb.
Yellow Ochre, - - - -	3 lbs
Soap, - - - - -	½ lb
Fresh Water, - - - -	¾ gill.

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85. *Composition for Hammock Cloths, No.* 4.

Black paint well ground, - -	80 pounds,
Linseed Oil, - - -	10 galls.
Bees wax, - - - -	10 pounds
Litharge, - - - -	5 do.
Spirits Turpentine, - - -	1 gall.

For blacking bends add 2 gallons of Tar.

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86. *Composition for Making Black Varnish.*

Spirits of Turpentine. - -	1 Gall.
Rosin, - - -	1 lb. 4 oz.
Lampblack, - - - -	1 do. 4 do.
Linseed Oil, - - - -	1 quart.

To be boiled on a slow fire for half an hour, then used, or laid on, when cold.

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87. *Solder for Tin.*

Nothing here is necessary, but good tough borax, and brass well mixed together with water to the consistence of paste.

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88. *Solder for Lead.*

Take two parts of water Lead and one part of tin, its goodness is tried by melting it, and pouring the size of a crown piece on a table, then if it be good, there will arise small bright stars or beads on it—apply rosin when you use it.

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89. *To make the best Drying Oil.*

Mix 1 ponnd of Litharge of gold to every 6 gallons of Oil, boil it over a slow fire, but not too much lest it prove too thick, and be unserviceable.

90. *For Black Stain.*

Copperas, - - - 4 oz.
Iron rust, or a few pieces of old iron hoop,
Vinegar, - - - 1 gallon,
Lampblack, - - ½ lb.
A small quantity of Oak shavings.

ERRATA.

Page. 5,	15th	line	for	Cavrick,	read	Carrick.
6,	26	"	"	Pauch,	"	Panch.
21,	18	"	"	clean,	"	clear.
49,	14	"	"	expand	"	expend.
58,	12	"	"	boy,	"	buoy.
61,	20	"	"	those	"	these.
83,	23	"	"	cleats,	"	blocks.
98,	11	"	"	ports,	"	parts.
101,	5	"	"	booms,	"	bows.
"	19	"	"	and,	"	end.
102,	3	"	"	thrimble,	"	treble

☞ No doubt there are other errors, which the author hopes the owner will correct with the pen.

THE END.